

Adult attachment, violence and anger in  
individuals with psychosis

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## Thesis Abstract

### **Adult attachment, violence and anger in individuals with psychosis**

**Introduction:** Existing literature suggests that insecure attachment, specifically dismissive/avoidant attachment, is associated with psychosis. Similarly, dismissive/avoidant attachment has also been linked with anger problems, interpersonal hostility and violent offending. However there has been little research looking specifically at the relationships between attachment, anger and violence in individuals with psychosis. The present study explored this by looking at associations between attachment and violence and between attachment and anger (both self-reported and observer-rated) whilst controlling for the influence of symptom severity.

**Methodology:** The study was correlational in design. A total of 39 male inpatients (forensic and non-forensic) with a diagnosis of schizophrenia, schizoaffective or delusional disorder were recruited. Three measures were administered directly with participants (PAM, NAS-PI, PSYRATS) and two measures were completed with participants' keyworkers (WARS, BSI- Risk subscale).

**Results:** As predicted, the association between attachment avoidance and self-reported anger (NAS-PI) was significant. Exploratory analyses revealed a significant association between attachment avoidance and anger arousal and a negative association with anger regulation. However no association was found between attachment avoidance and observer-rated anger. Contrary to prediction, the associations between attachment

avoidance and violence (in the last year) were not significant. No significant associations were found between attachment anxiety and any of the other variables. Finally, the presence of psychotic symptoms did not have any important moderating effects on the variables.

**Discussion and conclusions:** The finding of an association between attachment avoidance and self-reported anger is discussed in terms of the existing literature, and in the particular context of psychosis. Clinical implications of the findings include that approaches to anger treatment should be sensitive to attachment related difficulties, particularly in individuals with psychosis. Failure to find significant associations between attachment avoidance and violence might be due to low power and relatively low overall rates of recent violence in the present sample. Further research is required before any firm conclusions can be reached about the relationship between attachment and violence in individuals with psychosis.

## **Background to the study**

The current study emerged from the researcher's interest in understanding the importance of early relationships in the later propensity for violence in mentally disordered offenders. In recent years, interest has grown in the application of attachment theory, Bowlby's (1969, 1973, 1980) theory of socio-emotional development, to understanding adult emotional, behavioural and interpersonal functioning. Existing research indicates that insecure attachment is associated with adult psychopathology in general and that a particular type of insecure attachment, dismissive/avoidant attachment, is associated with psychosis. Similarly, dismissive/ avoidant attachment has also been linked with anger problems, interpersonal hostility and violent offending. However, there has been little research looking specifically at the relationships between attachment, anger and violence in individuals with psychosis. The aim of the present study was to explore these relationships by looking at associations between attachment and violence and between attachment and anger in individuals with psychosis.

## **Layout of Thesis**

The introductory chapters provide the reader with an outline of the existing literature in the key areas, definitions of key terms and the rationale for the present study. Chapter One focuses on psychosis, giving a brief overview of the aetiological issues before outlining psychosocial models of psychosis. The developmental factors thought to be involved in the onset and course of psychosis are highlighted. Chapter Two examines the relationship between violence and mental illness focusing specifically on psychosis. The developmental routes of violence both generally, and in those with mental illness, are outlined. The evidence linking violence and psychosis is then presented, together with the research on factors thought to moderate this relationship. In Chapter Three, the concept of attachment is introduced outlining the origins and key aspects of the theory. The subject of adult attachment is then introduced and the different approaches to measurement are discussed. Chapter Four presents a brief outline of the current evidence linking insecure attachment and general psychopathology, and then focuses on the empirical evidence supporting a relationship between insecure attachment, specifically dismissive/avoidant attachment, and psychosis. The link between attachment and psychosis is then discussed with reference to recent empirical investigations. Chapter Five, examines the relationship between insecure attachment and anger, hostility and violence. Some theoretical concepts are outlined and the existing evidence of a relationship is described. Chapter Six, the final chapter of the introduction, provides the rationale for the present study and the research hypotheses.

In Chapter Seven the methodology for the study is described and in Chapter Eight the results of the study are presented. In Chapter Nine the results are discussed, making reference to the existing literature, and the clinical and theoretical implications are highlighted. The limitations of the study are also discussed and some suggestions made for future research.

## **Chapter One: Psychosis**

### **1.1 Definitions of schizophrenia and psychosis**

The terms psychosis and schizophrenia are referred to throughout this thesis and therefore require clarification. The term schizophrenia refers to the diagnostic label given to individuals experiencing a particular group of symptoms. It can be understood as: "...a disorder of thinking characterised by distortion of reality, and impaired emotion responses, thinking process, and interpersonal abilities." (Birchwood and Jackson, 2001, p. 19).

Delusions and hallucinations are some of the core symptoms of schizophrenia (Birchwood and Jackson, 2001). Delusions are described as irrational, unusual or 'false' beliefs which are culturally abnormal (Kingdon & Turkington, 1994). These may include persecutory or paranoid beliefs, grandiosity or delusions of reference (e.g. the television is sending them messages) (Birchwood & Jackson, 2001). Auditory hallucinations commonly involve the individual hearing voices which may comment on their actions; issue commands; make derogatory comments or issue threats (Birchwood & Jackson, 2001). Hallucinations can also occur across the other sensory modalities (visual, gustatory, tactile) however auditory hallucinations are most frequently reported in schizophrenia (Bentall, 2004). Other symptoms of schizophrenia include thought disorder (e.g. thought broadcasting), experiences of being controlled by an external source and emotional or volitional changes (Birchwood & Jackson, 2001). The symptoms of schizophrenia are sometimes separated into two types: 'positive' and



‘negative’. Positive symptoms would include many of the above described experiences and are viewed as an addition to the person’s normal experiences. Negative symptoms are considered to be a blunting of experience and include apathy, social withdrawal and paucity of speech (ICD-10, World Health Organisation, 1992).

Disorders associated with schizophrenia such as schizoaffective and delusional disorder involve similar key experiences but may vary in terms of the specific profile of symptoms or the severity. The experience common to them all is some form of detachment from, or distortion of, reality and this is understood as ‘psychosis’. Collectively, these are known as ‘psychotic disorders’ (Birchwood and Jackson, 2001).

For the purposes of this thesis, ‘psychosis’ will be used as the general term. The term ‘schizophrenia’ will also be used where the literature sources cited have used this term specifically, rather than the term psychosis.

## **1.2 Prevalence rates of schizophrenia**

In a review of studies examining prevalence rates for schizophrenia, Torrey (1987) reported findings ranging from 0.3 to 17 per 1000 and concluded that prevalence varies among different populations and that it may change over time. A common finding is that prevalence rates are higher in developed countries compared to developing nations (McGrath, 2006). According to statistics published by the UK government, prevalence rates for psychotic disorders (including schizophrenia) were 0.5 in 100 in the year 2000

(Office for National Statistics, 2006). Lifetime risk of developing schizophrenia is reported to be approximately 1% (Birchwood & Jackson, 2001).

### **1.3 The aetiology of schizophrenia**

Biological approaches to understanding the aetiology of schizophrenia and associated psychotic disorders have identified a number of factors which may be important. These will now be briefly outlined.

#### **1.3.1 Genetic heritability**

Genetic hypotheses propose that schizophrenia is a heritable disorder. In a review of data from twin studies, Gottesman and Shields (1972) (cited in Birchwood & Jackson, 2001) reported a higher degree of concordance of schizophrenia among monozygotic twins compared to dizygotic twins. This would seem to support the existence of some genetic contribution to schizophrenia. Further, genetic liability may apply to the spectrum of psychotic disorders rather than schizophrenia specifically (Onstad *et al.*, 1991). Criticisms of the findings of the twin studies include the lack of consistency in the definition of schizophrenia; methodological flaws in data analyses and the fact that being a twin, in itself, may be a risk factor for schizophrenia (Bentall, 2003; Joseph, 2004).

#### **1.3.2 Neuropsychological theories**

Significant impairments such as neuromotor abnormalities and delayed attainment of milestones are observable in children who later develop schizophrenia (Walker, 1994;

Jones *et al.*, 1994). Neurodevelopmental theories propose that the origin of schizophrenia or perhaps the wider spectrum of psychotic disorder lies in abnormal development of the brain in-utero and beyond (Birchwood & Jackson, 2001). Research investigating the relationship between pregnancy/birth complications and later development of schizophrenia has not provided consistent support for this theory (Done *et al.*, 1991). Nevertheless, neurocognitive impairments such as memory problems and some executive dysfunction are common in those experiencing schizophrenia and other psychotic disorders (O'Carroll, 2000). Imaging studies reveal underlying brain changes in individuals with schizophrenia including increased blood flow to the left side of the sub-cortical region (Early *et al.*, 1994) and changes in the limbic system (Jernigan *et al.*, 1991). According to Nuechterlein *et al.* (1994), there is evidence that underlying neuropsychological abnormalities predate the onset of symptoms, suggesting a neuropsychological vulnerability to schizophrenia.

### **1.3.3 Biochemical theories**

Biochemical theories of schizophrenia purport that changes in the neurochemistry are the principal cause of the disorder. Neurotransmitters identified as being potentially important include noradrenaline, serotonin, and dopamine (Birchwood & Jackson, 2001). The role of the dopamine system is perhaps the best established theory and is referred to as the 'dopamine hypothesis'. Essentially the theory suggests that there is excessive activity of the dopaminergic system in the brains of individuals with schizophrenia (Birchwood & Jackson, 2001). In support of this theory, neuroleptic medication, which is used to ameliorate some of the symptoms of psychotic disorders,

targets the dopamine system in the brain (Johnstone *et al.*, 1978). One problem with this theory is the fact that individuals with psychosis vary significantly in their response to neuroleptic medication and that around 20% are resistant to such treatment (Brown & Herz, 1989). Some authors, for example Bentall (2003), claim the research has failed to establish clear evidence of dopamine abnormalities in the brains of individuals with schizophrenia.

#### **1.3.4 Problems with the concept of schizophrenia**

The failure to establish a clear, consistent aetiology of schizophrenia is attributed to the traditional classification of the disorder as a discrete diagnostic entity. It has been suggested that the concept of 'schizophrenia' itself is flawed (Boyle, 1990; Bentall, 2003; Read, 2004) and that this would account for the lack of clarity regarding aetiology. Read (2004) argues that as a scientific concept, schizophrenia lacks both reliability (failure to adequately distinguish between those with and without the disorder) and validity (poor symptom specificity and outcome consistency). Bentall (2003, 2004 & 2006) proposes that it would be better to abandon the traditional diagnostic approach in favour of a 'complaint-orientated' approach to understanding psychotic disorders. Specifically, Bentall (2006) highlights the importance of exploring the psychological mechanisms responsible for the development of particular symptoms and the risk factors which may underpin these.

## **1.4 Psychosocial influences and psychosis**

Psychosocial models of psychosis essentially posit that life events and current circumstances play a key role in its development and course. These will now be outlined with particular reference to the influence of early developmental experiences where appropriate.

### **1.4.1 The vulnerability-stress model**

The vulnerability-stress model of psychosis proposes that underlying vulnerability, which may be biological, psychological or social in origin, is activated by current psychosocial stress, leading to the onset of symptoms (Zubin and Spring, 1977). Such a model helps to overcome some of the problems described above in attempting to establish a single aetiological factor responsible for schizophrenia. Further, in attempting to discover the underlying psychological and social factors involved in the development and course of psychosis, it is recognised that these are not mutually exclusive and instead are likely to contribute to a greater or lesser degree, depending on the individual and their experiences.

### **1.4.2 Cognitive models of psychosis**

The cognitive model of psychosis is based on Beck's (1976) original cognitive model of emotional disorders. Briefly, Beck's model posits that our appraisal of events influences how we think, feel and act and that in turn our appraisals, accurate or otherwise, are maintained by cognitive biases and our subsequent behavioural responses. Further, the model proposes that our appraisals or interpretations of events tend to be influenced by

pre-existing, underlying core beliefs or schema about the self, other people and the world, which we develop according to our early experiences.

According to Garety *et al.*'s (2001) cognitive model of psychotic symptoms, a triggering event (or stressor) causes some disruption in cognitive processing which leads to some anomalous conscious experiences (e.g. heightened perception, two unrelated events appearing connected, intrusive thoughts etc). Concurrently there is an emotional response (anxiety, depression, anger) to both the triggering event itself and the anomalous conscious experience. This then leads to further disruption in cognitive processing. In the individual's search for explanation, the interpretation or appraisal is crucial: if the experience is attributed to some external source, outwith the individual, this can lead to psychotic symptoms.

Consistent with vulnerability-stress models, Garety *et al.* (2001) suggest that adverse early life experiences including deprivation, loss and/or trauma increase vulnerability to psychosis by influencing the development of negative schematic models of the self and the world, increasing the likelihood that the individual will interpret the anomalous experience as threatening or dangerous. For example, Freeman and Garety (2004) propose that in the formation of persecutory beliefs, individuals tend to have core schemata of themselves as vulnerable and of others as hostile and threatening. This is a circular process as once established, persecutory beliefs then serve to confirm the core schema and in turn, further strengthen the delusional beliefs.

There is some consensus that it is the interpretation of, or misattributions made following the anomalous or intrusive experiences, rather than the experience itself, that causes the distress and disability associated with psychosis (Morrison, 2001).

Furthermore, there is some evidence to suggest that paranoid individuals show a tendency to towards a self-serving bias in their attributional style. Kaney & Bentall (1989) for example, found that individuals with persecutory delusions made more external attributions for negative events and more internal attributions for positive events, compared to depressed individuals and normal controls. Subsequent research has indicated that this self-serving bias may not be generalised to all paranoid individuals: Jolley *et al.* (2006) found that a self-serving attributional style was specific to a sub-group of paranoid individuals with grandiose beliefs and not to a depressed sub-group of paranoid individuals.

A further aspect of attributional style is whether external events are attributed to the actions of another individual or to circumstantial factors. In a study comparing paranoid patients with depressed and normal controls, Kinderman & Bentall (1997) found that the paranoid group were more likely to make external attributions which blamed others for negative hypothetical social events. Thus, if an individual has a tendency to make external attributions for negative events which blame other people rather than circumstance, then potentially they may be more at risk of developing paranoia. Bentall (2006) argues that the cognitive processes, such as attributional style, involved in the

development of particular psychotic symptoms, are likely to be influenced by early experiences but that this has yet to be adequately investigated.

#### **1.4.3 The role of the family**

There has been a considerable amount of research in the last few decades investigating the role of family in psychosis. Much of this has focussed on ‘expressed emotion’ (EE) in illness relapse (Read *et al.*, 2004). Expressed emotion is measured across three components: hostility, criticism, over-involvement. Studies suggest that relapse rates are higher for individuals with families exhibiting high EE (Kavanagh, 1992). Following family intervention to reduce EE, Leff *et al.* (1982) found relapse rates were considerably lower compared to those not receiving family intervention.

Given the findings regarding relapse rates, it seems logical that family interactions may also be significant in the development of psychosis. The UCLA High Risk Project (Goldstein, 1987) was a prospective study following up a cohort of 64 families. The study found that ‘affective style’ (AS), which is a measure of negative affect expressed by parents during family interaction (Diamond and Doane, 1994), was predictive of the later development of schizophrenia spectrum disorders (Goldstein, 1987). High levels of ‘communication deviance’ (CD) measuring the “tendency to speak in a way that makes shared meaning difficult” (Read *et al.*, 2004, p.257) was also found to be predictive of later development of schizophrenia (Goldstein, 1987). Finally, the combination of communication deviance and affective style was found to be especially predictive (Goldstein, 1987). According to Doane *et al.* (1981), the combination of vague,



confusing communication, coupled with negative affect directed towards the individual leaves them particularly vulnerable and unable to explore or alter their feelings of rejection and unworthiness

The research findings appear to suggest that family relationships and specifically, the experience of the individual growing up within the family, is a factor in the development and course of psychosis.

#### **1.4.4 Emotional dysfunction**

Whilst historically, a distinction was made between affective and non-affective psychosis, it is increasingly recognised that emotional dysfunction is intrinsic to psychosis (Birchwood, 2003). Emotional disturbance is a common feature of the prodromal phase of psychosis (Freeman & Garety, 2004). Evidence suggests that emotional problems may precede the onset of symptoms; specifically social anxiety in adolescence is predictive of later development of schizophrenia (Jones *et al.*, 1994). Freeman and Garety (2004) hypothesise that emotional disturbance has a role in symptom formation. Birchwood (2003) proposes that developmental risk factors for emotional dysfunction in individuals with psychosis may include childhood trauma, abuse, neglect and poor attachment. In terms of the cognitive model of psychosis, Birchwood (2003) argues that such negative early experiences would influence the development of negative schemata, which in turn are linked to the individual's emotional response to the experience of psychosis.

Depression, social anxiety, and traumatic symptoms are commonly present in individuals with psychosis, possibly as a consequence of the distressing nature of psychotic symptoms experienced (Birchwood, 2003). Norman *et al.* (1998) found that anxiety and in particular, physiological arousal, were related to the reality distortion symptoms of schizophrenia. Although there are few systematic studies, levels of anger and hostility may also be elevated in individuals with psychosis (Freeman & Garety, 2004).

#### **1.4.5 Recovery style**

Recovery style refers to the strategies an individual adopts in order to gain control over their psychotic symptoms (Drayton *et al.*, 1998). Research has shown that recovery style is related to outcome. There are two distinct recovery styles identified in individuals with psychosis: sealing-over and integration (McGlashan, 1987). Sealing-over is a strategy of avoidance where the individual tends to isolate the psychotic experience. Integration involves the individual attempting to make sense of and thereby 'integrate' their psychotic experience. Sealing-over is associated with poorer outcome in terms of relapse and social functioning (McGlashan, 1987). Drayton *et al.* (1998) explored the developmental aspects of recovery style and found that sealing-over was associated with negative self-evaluative beliefs and perceived lack of parental care. In a more recent study, Tait *et al.* (2004) reported similar findings. Specifically, that individuals with sealing-over recovery styles tended to endorse a more negative view of themselves and tended to perceive their parents as less caring and more abusive, compared to individuals with an integrative recovery style. The findings from both Drayton *et al.*'s (1998) and

Tait *et al.* 's (2004) studies suggest that negative early experiences with parental figures may adversely affect the way in which the individual adapts to the psychosis itself, which in turn has implications for outcome.

#### **1.4.6 Interpersonal factors**

According to Penn *et al.* (1997), an underlying assumption of psychosocial approaches to schizophrenia is that it is “inherently an interpersonal disorder” (p 114). Social dysfunction is in fact one of the diagnostic criteria for the disorder in the American classification system (DSM-IV, APA, 1994). Social difficulties might include social withdrawal, impaired social relationships (Birchwood & Jackson, 2001) and impaired communication (Bentall, 2006). As well as being a symptom in its own right, social dysfunction may be linked with other symptoms of the disorder such as paranoid delusions. Freeman and Garety (2004) found that patients with paranoid delusions tend to use safety behaviours, most commonly avoidance. They suggest that these maintain delusional beliefs by preventing the experience of disconfirmatory evidence. This can be understood in the context that delusional beliefs are usually personally relevant, often concerning the individual's social position (Bentall, 1994). Persecutory beliefs are among the most common types of delusional beliefs (Freeman & Garety, 2004) and are inherently interpersonal in nature.

#### **1.4.7 Social cognition**

Penn *et al.* (1997) argue that hallucinations and delusions, as well as more general deficits in social functioning in individuals with schizophrenia, can be attributed to

problems with social cognition. Social cognition is the “mental operation underlying social interactions” (Penn *et al.*, 1997, p.116). Frith (1994) hypothesised that ‘theory of mind’ (ToM) (the ability to understand other peoples’ behaviour in terms of their intentions, knowledge and beliefs) is essential for successful social interactions and that deficits in ToM may help to explain some of the impairments associated with schizophrenia. He argued that unlike autism, where a “lack of ‘theory mind’” might explain the key features of the disorder, in schizophrenia ToM is faulty rather than absent and the inferences the individual makes regarding the mental states of others are often wrong. For example, Frith (1992, 1994) suggested that a faulty ToM might explain the development of persecutory beliefs, as the individual mistakenly infers malice in the intentions of others. Furthermore, Frith (1992, 1994) hypothesised that communication difficulties commonly found in schizophrenia, such as incoherent speech, could be explained by a difficulty in considering the other person’s perspective. Further, that negative symptoms, such as social withdrawal might be explained by impaired ‘willed action’, the ability to spontaneously generate behaviour.

Frith & Corcorran (1996) offered some support for the suggestion that a deficit in ToM might explain some of the symptoms of schizophrenia, with a study in which they assessed performance on ‘false-belief’ tasks (designed to assess ability to infer mental states of others). They found that some patients with schizophrenia showed impairments on the task compared to controls, however this was specific to individuals with paranoid delusions and ‘behavioural signs’ (e.g. poverty of speech, incoherent speech) (Frith & Corcorran, 1996). Thus the study provides some evidence that patients with these

particular symptoms have a difficulty in understanding the mental states of others. It is however worth noting that the sample sizes in the study were relatively small.

As with emotional dysfunction, the evidence suggests that social difficulties pre-date the onset of psychosis. Studies suggest that poor premorbid social and interpersonal functioning is associated with future onset of schizophrenia. In a prospective study, Jones *et al.* (1994) found that low self-rated social confidence and low observer-rated sociability in teenagers were risk factors for the later development schizophrenia. Similarly, Done *et al.* (1991) found an increased prevalence of social deficits in children who later developed schizophrenia. Cannon *et al.* (2001) examined predictors of later psychosis and found that abnormal suspiciousness and relationship difficulties with peers in early adolescence were associated with adult schizophrenia.

## **1.5 Summary**

The terms psychosis and schizophrenia have been explained together with a brief outline of the common symptoms. A brief review of the aetiology of schizophrenia highlights the difficulty in identifying a single causal factor. Current psychosocial models of psychosis suggest that individual vulnerability, onset and course will be determined by a range of factors including early experiences, family relationships, emotional functioning, interpersonal competence and recovery style. The developmental aspects of these factors have been discussed.

## **Chapter Two: Violence and its relationship with psychosis**

### **2.1 Key definitions**

Prior to discussing the relationship between violence and psychosis it is important to provide a definition of violence and some associated concepts.

#### **2.1.1 Violence and aggression**

Violence and aggression are understood to be similar in meaning however the literature does make some distinctions. Blumenthal and Lavender (2000) cite Hollin and Howells' (1989) definition of aggression as 'the intent to hurt or gain advantage over other people' and violence as involving the 'use of strong physical force against another person' (p3.). Thus the term violence implies some physical action made by the perpetrator towards the victim. Aggression on the other hand might involve intimidating or threatening behaviour but not necessarily physical contact.

#### **2.1.2 Hostility**

Hostility is an attitudinal construct and refers to the negative evaluation of others, such that others are viewed with cynicism, mistrust and derogation (Eckhardt *et al.*, 2004).

#### **2.1.3 Anger**

Novaco (1994) describes anger as a subjective emotional state involving physiological arousal and antagonistic cognitions (which are automatic). It can be a significant activator of aggressive or violent behaviour in response to provocation. In explaining

this, Novaco (1994) proposes that the inclination to react in an antagonistic or aggressive manner in response to anger provocation is “regulated by inhibitory mechanisms (internal and external controls) which may be overridden by disinhibitory influences (such as heightened arousal, aggressive modelling...and biochemical agents)” (p.32). Thus anger is understood to be a causal determinant of aggression (Novaco, 1994)

## **2.2 Developmental aspects of violence**

The developmental precursors of violence seem to share some similarity with those factors thought to be important in the development of psychosis. In particular, negative early experiences seem to be a risk factor for violence.

### **2.2.1 The ‘cycle of violence’**

The ‘cycle of violence’ hypothesis suggests that childhood victims of violence are more likely to become perpetrators of violence in later life (Blumenthal & Lavender, 2000). Support for this hypothesis has been demonstrated empirically: Widom (1989) found that abused and neglected children are significantly more at risk of violent behaviour in adulthood. In a more recent study, Lansford *et al.* (2007) found that physical abuse in the first 5 years of life predicted both violent and non-violent offending in juveniles. An association between local authority care and violence has also been found. Singleton *et al.* (1998) found that more than a quarter of UK prison inmates had been in local authority care during childhood. The number of foster care placements experienced has also been associated with future violence (Reiss & Roth, 1993, cited in Blumenthal & Lavender, 2000).

### **2.2.2 Early bio-social precursors for violence**

In a large cohort study, Raine *et al.* (1994) found that birth complications combined with early maternal rejection predicted future violent offending at age 18. Early maternal rejection included negative attitudes towards the pregnancy, attempts to abort the foetus and the infant being placed in care during the first year. In a further study, Raine *et al.* (1997) increased the follow-up period to age 34 and found that the interaction persisted and that it was unique to violent rather than non-violent crime. They also found that the interaction was specific to more severe types of violence (e.g. rape, murder) and for earlier onset of violence (before the age of 18).

### **2.2.3 Shared causal determinants of violence and mental illness**

Hiday (1995) proposes an interactional model of violence in individuals with mental illness where an important underlying factor is social stratification. Hiday (1995) specifically refers to social disorganisation, defined as chronic deprivation, hopelessness, perceived lack of control and family breakdown, as causative in the development of both mental illness and violent behaviour. In the context of social disorganization, violence and victimisation are more common (Swanson *et al.*, 1990; Wessley *et al.*, 1994; Krug, 2002), both within and outwith the family. The experience of social disorganization and victimisation/violence leads to the development of an underlying belief system of mistrust and suspicion of others (Mirowsky & Ross, 1983). Hiday suggest that this interacts with other symptoms of mental illness potentiating the risk of violence.



## **2.3 Evidence of a link between violence and mental illness, specifically psychosis.**

### **2.3.1 Methodological problems in violence research**

Prior to presenting the evidence some methodological issues in the research should be highlighted. Violence is a complex phenomenon and is influenced by a number of factors of biological and psychosocial origin (Blumenthal & Lavender, 2000). Whether there is a link between violence and mental disorder has been the subject of much debate. There are a number of inconsistencies in the research findings and these have been attributed to methodological problems. For example, variation in outcome measures (Blumenthal & Lavender, 2000), biased sampling procedures (Blumenthal & Lavender, 2000; Hiday, 1995), and failure to control for confounding variables (Crichton, 1999; Hiday, 1995). These will be highlighted where appropriate.

### **2.3.2 Prison samples**

Various methods of studying the relationship between mental illness and violence have been employed. Some researchers have adopted the approach of looking at rates of mental illness in prison populations. Singelton *et al.*, (1998) found that 10% of male remand prisoners and 7% of sentenced males had a psychotic illness. Rates were slightly higher in females. In a study of Finnish females who committed homicide, Putkonen *et al.* (1998) found high rates of psychotic illness (28%). Wallace *et al.* (1998) found that 7.2% of males convicted of a homicide had been treated for schizophrenia. These rates are all higher than the previously reported general prevalence rates for schizophrenia.

However the difficulty with prison studies is that prisoners are a highly selected sample (Blumenthal & Lavender, 2000) and therefore the findings may not be representative of the general population.

### **2.3.3 Epidemiological approaches**

Epidemiological studies have looked at rates of violence and mental illness among community samples. Swanson *et al.* (1990) found schizophrenia to be a significant predictor of violence (demographic variables and co-morbid substance abuse were controlled for). Stueve and Link (1997) found higher rates of self-reported violence among individuals with psychotic illness compared to other psychiatric disorders (e.g. depression, anxiety). They controlled for confounding variables such as substance abuse and antisocial personality disorder. In a cohort study, individuals with schizophreniform disorder (schizophrenia-like symptoms but of shorter duration) were more than twice as likely to have been violent in the previous year when other variables such as gender, socioeconomic status and alcohol dependence were controlled for (Arseneault *et al.*, 2000).

### **2.3.4 Psychiatric samples**

Other studies have examined rates of violence in psychiatric patients prior to, during and post hospital admission. In reviewing studies of pre-admission violence, Blumenthal and Lavender (2000) report that rates vary from 10-40%. However they comment that high levels of pre-admission violence in an inpatient sample is unsurprising given that violent behaviour is likely to be a key criteria for admitting someone to hospital.

There is also likely to be variation depending on the type of unit or ward from which the sample is taken. For example, when looking at high security hospitals pre-admission violence rates are likely to be higher. Taylor *et al.* (1998) found that interpersonal violence (including homicide) was the main precipitant in admission in 76% of special (high secure) hospital patients in England. Schizophrenia was most strongly related to violence compared to other diagnoses.

In studying inpatient violence in general psychiatric settings, Fottrell (1980) found that the percentage of individuals who behaved violently ranged between 3 -10%. They also found that the vast majority of incidents were very minor (not resulting in any injury) and that a small minority of individuals were responsible for the majority of incidents. Monahan (1992) reviewed 12 studies on prevalence of inpatient violence and found rates varied from 10-40%. Differences or inconsistencies in the rates may be accounted for by sample selection and the lack of uniformity in definition and measurement of violence (Nijman *et al.*, 2006).

Data from the MacArthur Violence Risk Assessment study which followed up psychiatric patients post-discharge, found higher rates of violence compared to a community sample however, they found that the key variable was substance use rather than mental illness (Steadman *et al.*, 1998). Critics of this research argue that failure to find increased rates of violence among these patients post-discharge (except for those

with co-morbid substance misuse) may be a treatment effect related to medication compliance (Junginger & McGuire, 2004).

## **2.4 The nature of the relationship between psychosis and violence**

Despite inconsistencies and methodological problems in the data, the literature seems to support the existence of a link between mental illness and violence (Junginger & McGuire, 2004; Link *et al.*, 1998). Specifically, a small but consistent association exists between psychotic disorders and violence (Walsh *et al.*, 2002). There are however some key variables which potentially increase risk of violence in individuals with psychosis.

### **2.4.1 Substance use**

In a review of studies examining violence and schizophrenia, Walsh *et al.* (2002) report that co-morbid substance misuse considerably increases risk of violence. Wallace *et al.* (1998) found that individuals with schizophrenia and a history of substance misuse were 8 times more likely to be convicted of a violent offence, and 4 times more likely to be convicted of a homicide, than individuals with schizophrenia with no history of substance misuse.

### **2.4.2 Symptoms of Psychosis**

The issue of whether certain types of psychotic symptoms increase risk of violence has also been examined. Two types of symptoms in particular are potentially relevant: command hallucinations and thought/control-override symptoms (TCO). The former refer to a hallucinatory experience of being commanded to act in a certain way

(Blumenthal & Lavender, 2000). TCO's are symptoms which involve the individual perceiving themselves to be under threat or being controlled by some external forces: e.g. persecutory delusions, delusions of control and thought insertion (Link *et al.*, 1998). McNeil *et al.* (2000) found that persons who experienced hallucinations commanding them to harm others were twice as likely to be violent as those who had not experienced violent command hallucinations. However, other studies have failed to find an association between command hallucinations and increased risk of violence (Rudnick, 1999).

Some studies have found that individuals experiencing TCO's were more likely to engage in violent behaviour (Link *et al.*, 1994; Link *et al.*, 1998). Data from the MacArthur Violence Risk Assessment study failed to support this finding: Appelbaum *et al.* (2000) found that neither delusions in general nor TCO's were associated with a higher risk of violence. Junginger & McGuire (2004) suggest that although violence in individuals with psychosis may be motivated by psychotic symptoms, this motivation may not be reflected in the actual violence rates. One might assume this is partly because violence is a complex behaviour with numerous mediating factors.

The role of psychotic motivation is however clinically relevant when considering violent individuals with psychosis. In a retrospective study involving all patients in English maximum security hospitals, it was reported that in over 75% of cases, individuals had been 'driven' to offend by their delusions (Taylor *et al.*, 1998). Junginger (1996)

suggested that violence in individuals with psychosis may have a self-defence function: that it might be viewed as a rational response to irrational beliefs or perceptions.

### **2.4.3 Anger**

There has been relatively little exploration of the role of anger in influencing violent behaviour in individuals with mental illness, despite evidence suggesting that anger is a significant predictor of violence (Doyle & Dolan, 2006). In a large study of psychiatric admissions, Craig (1982) found that anger was strongly associated with assaultiveness, particularly among individuals with schizophrenia. In a study examining inpatient violence, Novaco (1994) reported that individuals identified as 'high anger' were seven times more likely to be assaultative than individuals rated as 'low anger'. In a prospective study based in a UK special hospital, levels of anger predicted assaultiveness and discharge status of male patients over a follow-up period of 12-30 months (Novaco & Renwick, 1998). Doyle and Dolan (2006) found that both observer-rated and self-rated anger were predictive of violence among forensic inpatients (note due to low rates of "physical aggression" [5.3%] they included "threats of violence" [combined rate = 23.4%] as an outcome measure).

### **2.4.4 Contextual factors**

The causes of violence are likely to be multifactorial and the role of the environmental and interpersonal factors should be given due consideration (Blumenthal & Lavender, 2000; Whittington & Richter, 2006). Looking specifically at psychiatric inpatient settings, research suggests that factors such as enforcement of rules (Sheridan *et al*,

1990), overcrowding, provocation and staff inexperience (Davis, 1991) are linked with violence. It may be the case that external factors are more important in provoking violence than the state of mind of the individual (Sheridan et *al.*, 1990; Shepherd & Lavender, 1999).

## **2.5 Summary**

There may be some shared developmental risk factors, common to the development of psychosis and violence, including negative early experiences and poor family relationships. Furthermore, evidence suggests a link between violence and psychosis although this is likely to be complex. Factors such as substance use, symptom type, and anger have been identified as significant in moderating this relationship.

## **Chapter Three: Attachment**

### **3.1 Outline of attachment theory**

#### **3.1.1 Definition of attachment theory**

Originally developed by Bowlby (1969, 1973, 1980), attachment theory is:

“a way of conceptualizing the propensity of human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and personality disturbance, including anxiety, anger, depression and emotional detachment, to which unwilling separation and loss give rise” (Bowlby, 1977, p.201).

Essentially the theory purports to explain the nature and function of a child’s connection to its mother or primary caregiver and the subsequent influence this has on the child’s future functioning and well-being.

#### **3.1.2 The origins of attachment theory**

Prior to Bowlby’s work, secondary-drive theories were common to both psychoanalysts and social learning theorists to explain the child’s relationship with its mother (Cassidy, 1999). The function of the child’s relationship to its mother was understood to be centred on the child’s innate drive for food. Bowlby argued that the nature of relationship could be better understood in terms of a behavioural system in its own right, the primary function of which is to maintain proximity to the primary caregiver which in turn serves to protect the infant from harm (Bowlby, 1988). Bowlby (1969) hypothesised



an evolutionary adaptive basis for the development of such a system, highlighting the existence of attachment behaviour among various primate species including gorillas and chimpanzees.

Bowlby's work on attachment theory has been expanded by other contributors notably Ainsworth *et al.* (1978) who developed the 'strange situation' procedure enabling the empirical examination of infants' attachment patterns (described in Section 3.1.5). According to Bowlby (1988), "attachment theory is widely regarded as probably the best supported theory of socio-emotional development yet available" (p28).

### **3.1.3 Attachment behaviour**

Attachment behaviour is defined as "any form of behaviour that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world" (Bowlby, 1988, p.26). It includes care-eliciting behaviour such as crying, following, clinging and protest when the attachment figure is absent (Bowlby, 1977). Bowlby identified the biological function of the attachment system as protection and thus likely to become activated "when the person is frightened, fatigued or sick" (Bowlby, 1988, p.27). In times where the system is not directly 'activated', an awareness that the attachment figure is available and likely to respond if necessary, provides the individual with a strong sense of security and consequently the relationship is perceived as valuable (Bowlby, 1988).

#### **3.1.4 Attachment security**

The ‘sense of security’ or “secure base” (Ainsworth *et al.*, 1978) is deemed central to attachment theory (Crowell *et al.*, 1999). The attachment relationship should ideally provide the infant with a secure base from which to explore and become increasingly independent.

#### **3.1.5 Attachment patterns**

The importance of forming an attachment with a caregiver is such that even in cases where the caregiver is neglectful and/or abusive, the child will develop some form of attachment to the caregiver (Weinfield *et al.*, 1999). Differences in the quality of caregiving provided by the attachment figures lead to observable differences in the attachment behaviour of infants (Ainsworth *et al.*, 1978).

Ainsworth *et al.* (1978) developed the experimental procedure known as the ‘strange situation’ which was designed to capture the attachment behaviour of infants under conditions of stress. The procedure involves different stages but essentially aims to observe the infant’s behaviour with their caregiver in an unfamiliar room; their subsequent behaviour when their caregiver leaves the room for a short period (leaving them alone with an unfamiliar adult), and then the infant’s response on being re-united with their caregiver. Ainsworth *et al.* (1978) observed that the behaviour of the infants fell into three distinct patterns:

*Secure:* The secure infants use their caregiver as a secure-base to explore the room; they show some signs of distress when the caregiver leaves them; they appear pleased to see them on their return and are quickly soothed; they are then able to resume exploration.

*Avoidant:* These infants are able to explore the room but show less affect towards their caregiver; they show limited response to separation; they will actively avoid the caregiver on return and may appear intensely focussed on other objects e.g. toys.

*Ambivalent or resistant:* Infants are not able to engage in any initial exploration of the room; when the caregiver leaves they show distress; on reunion they are not comforted easily and may alternate between seeking contact with the caregiver and displaying anger towards the caregiver.

A fourth attachment pattern classification: '*disorganised or disorientated*' was proposed to explain the strange situation behaviour of a group of infants who failed to fall into one of the above three classifications satisfactorily. These infants appear dazed or disorientated by the procedure and most importantly, fail to show any coherent attachment strategy in terms of their interactions with their caregiver (Main and Solomon (1990), cited in Solomon & George, 1999).

### **3.1.6 The development of attachment patterns**

The attachment literature suggests that the development of the infant's attachment pattern is determined by the way in which their parents or caregivers treat them

(Bowlby, 1988). The provision of reliable and sensitive care by the caregiver, offering comfort and protection when necessary, is purported to result in the development of secure attachment in the infant (Weinfield *et al.*, 1999). Mothers of avoidant infants on the other hand tend to be unresponsive to their infant; engage in less physical contact and reject their infant's attempts to seek comfort or physical contact (Bretherton & Munholland, 1999). Mothers of ambivalent/resistant infants tend to exhibit inconsistent caregiving towards the infant, being responsive on some occasions but ignoring or rejecting on other occasions (Bretherton & Munholland, 1999). Finally, it is suggested that the fourth classification, disorganized or disorientated attachment, may occur when mothers or caregivers have abused or neglected the infant (Crittenden, 1985).

Infants with insecure attachment feel 'anxious' rather than secure in their caregiver's responsiveness. In order to reduce this anxiety, the infant develops a pattern of attachment behaviour that is responsive to the reciprocal caregiving and thus it may be viewed as adaptive in terms of that particular relationship (Crowell & Treboux, 1995). For example, in the case of avoidance, the infant has learned that expression of attachment behaviour leads to rejection by the caregiver and so has learned to 'avoid' or minimise the expression of distress so as to reduce the risk of further rejection (Crowell & Treboux, 1995). Anxious/ambivalent infants on the other hand, have experienced inconsistent responding from the caregiver and therefore display increased degrees of attachment behaviour, such as crying or following, to try to increase likelihood of responsiveness (Cassidy & Berlin, 1994).

### **3.1.7 Internal working models.**

In order to explain the mechanisms by which the parent or caregiver's treatment of the infant serve to shape the development of the infant's attachment pattern, Bowlby (1969, 1973) hypothesised that the infant develops representational models or 'internal working models' (IWMs) of the self and others according to their experience with their attachment figures in early life. In other words, the infant gradually develops a model of self and models of their attachment figures based on their previous experience of the relationship. This enables the infant to predict the future behaviour of the attachment figure, in particular how they are likely to respond to them. Models of the self and of the attachment figure are hypothesised to be complementary (Bowlby, 1973): Where there is a working model of an attachment figure as responsive and supportive the individual is likely to develop a model of self as valued and competent. Conversely, if the working model of the attachment figure is rejecting and unresponsive, the model of self that is likely to develop is one of feeling devalued and incompetent (Bretherton & Munholland, 1999).

It is suggested that as the child gets older and is likely to spend less time in the company of their caregiver (e.g. when starting school or nursery), those with an internal representation of a supportive attachment figure can feel secure even when the attachment figure is absent (Bretherton & Munholland, 1999). Thus the child is starting to internalise a felt sense of security which provides them with the confidence to explore their world.

Although subject to development and modifications over time, internal working models of self and others tend to persist into adulthood (Bowlby, 1977). Thus new significant others will be assimilated onto existing models and correspondingly, there is an expectation that the self will be treated by others according to the existing self-model (Bowlby, 1977). For example:

“... an unwanted child is likely not only to feel unwanted by his parents but to believe that he is essentially unwanted, namely unwanted by anyone. Conversely, a much-loved child may grow up to be not only confident of his parents’ affection but confident that everyone else will find him lovable too.” (Bowlby, 1973, p.204).

Internal working models operate at an unconscious level guiding cognition, attention, information processing and regulating emotional experience (Bowlby, 1969). Furthermore, these models of self and others form the basis of personality organization, persisting throughout life at an unconscious level (Bowlby, 1988). Inevitably they will guide social interactions and emotional regulation (Bartholomew, 1990).

### **3.1.8 Attachment and emotion regulation**

The ability to regulate emotions is purported to develop in the context of early attachment relationships (Bowlby, 1969; Gumley & Schwannauer, 2006). Initially an infant is reliant upon the caregiver to regulate their distress and soothe them. With sensitive care giving and the subsequent development of secure attachment, the child is able to tolerate the experience of anxiety, secure in the knowledge that the attachment

figure will contain this anxiety. Further they can utilise the internalised sense of security which is developing in the context of secure attachment relationships (Gumley & Schwannauer, 2006). For children with insecure attachment, effective emotion regulation is more difficult. They lack confidence that their care giver will respond and provide the necessary security. Two types of strategies are generally used to regulate their distress: minimising or maximising strategies (Dozier *et al.*, 1999; Gumley & Schwannauer, 2006). Minimising or avoidant strategies seek to downplay attachment needs and thus affect is over-regulated. Maximising strategies on the other hand involve exaggerated attachment behaviour and expression of distress in order to increase likelihood the caregiver will respond (Gumley & Schwannauer, 2006). Dozier *et al.* (1999) suggest that minimising strategies are likely to predispose the child to later development of externalising disorders (e.g. conduct disorder) whilst maximising strategies present increased risk of internalising disorders (anxiety, depression).

Empirical evidence suggests that attachment security is related to social competence and emotional regulation in children. Sroufe (1983) found that secure preschool children had more successful peer relations than insecure children and that they were less aggressive and showed more positive emotion in social situations. Further, avoidant preschoolers were also likely to be described by their teachers as withdrawn or hostile (Sroufe, 1983).

### **3.2 Adult attachment**

The application of attachment theory is not limited to specific mother-child interactions. It transcends across the life span and adult attachment relationships may exist among

friends, siblings and romantic partners (Ainsworth, 1991; Bowlby, 1969). Attachment relationships among adults are distinguished from other types of relationships in that they provide the individual with a sense of security, rather than simple companionship or sexual gratification (Crowell *et al.*, 1999). Bowlby (1969) identified that attachment behaviour in adults is particularly apparent during times of stress or perceived threat and that under these circumstances adults are likely to become more demanding of others and/or seek proximity to the attachment figure.

### **3.3 Approaches to adult attachment**

In recent years, there has been increased interest in this area of adult attachment and several different groups of investigators have pursued differing lines of research. Consequently there has been some divergence in terms of the focus of the various investigations and also in their methods of measuring attachment.

#### **3.3.1 The narrative approach and the Adult Attachment Interview (AAI)**

Adopting a narrative approach, Main and colleagues created the Adult Attachment Interview (AAI: George *et al.*, 1984, 1985, 1996). This interview-based method seeks to identify 'attachment states of mind' by examining the coherence of the individual's narrative when asked to describe their experience of being parented (Main *et al.*, 1985). In doing so, the aim is to identify attachment representations or 'working models' which are not necessarily accessible at the conscious level (Crowell & Treboux, 1995). Using the scoring system they have developed (Main & Goldwyn, 1987, cited in Crowell *et al.*, 1999), individuals are assigned to one of the three major classifications according to



their pattern of scoring (Crowell *et al.*, 1999). These classifications are: secure/ autonomous; insecure/ dismissing; insecure/ preoccupied. They parallel Ainsworth *et al.*'s (1978) three infant attachment patterns. In addition to these major classifications, there are two further classifications: a classification of 'unresolved/ disorganised' is assigned in cases where the individual's narrative indicates some unresolved attachment loss or trauma (Hesse, 1999). Hesse (1996) outlined a further category of "cannot classify" in cases where the adult's narrative is contradictory and/or contains elements rarely seen together.

Bakermans-Kranenburg & van IJzendoorn, (1993) conducted a meta-analysis of AAI studies based on non-clinical samples of adult males, females and adolescents. They found the distribution of attachment patterns to be 58% secure/ autonomous, 24% dismissing and 18% preoccupied. Nineteen percent received the additional classification of unresolved (Bakermans-Kranenburg & van IJzendoorn, 1993). AAI classification is associated with current interpersonal and psychological functioning: Kobak & Sceery, (1988) found that secure individuals reported higher levels of social support and less loneliness compared to dismissing individuals. Secure individuals were also rated by their peers as less anxious and less hostile compared to dismissing or preoccupied individuals (Kobak & Sceery, 1988).

The AAI has been shown to be a stable measure of adult attachment (Crowell & Treboux, 1995). It does however have some drawbacks in that it does not directly assess

attachment behaviour in current adult relationships (Crowell *et al.*, 1999). It is also time consuming and requires lengthy training to administer (Berry *et al.*, 2006).

### **3.3.2 Self-report measures of attachment**

Hazan and Shaver (1987) were among the first researchers to investigate attachment behaviour in adult relationships. They proposed that romantic love could be understood as an attachment process and that particular patterns of attachment behaviour would be evident: secure, ambivalent and avoidant. They developed a forced choice self-report measure in which individuals are provided with descriptions of each of the three categories and asked to identify which description best describes their behaviour in previous romantic relationships. What is measured is therefore the individual's conscious appraisal of their behaviour in romantic relationships. Hazan and Shaver (1987) found that individuals identified themselves as being secure, ambivalent or avoidant in their attachment style with frequencies comparable to those observed in infants. They also found that attachment style was significant in determining how individuals experienced romantic love and further, that it was related to working models of self and others in romantic relationships. Finally, they found that attachment style in adult romantic relationships was predicted by the self-reported quality of early relationships with parents (Hazan & Shaver, 1987).

In a nationally representative sample, Mickleson *et al.* (1997) reported the following distribution of self-reported attachment behaviour in romantic relationships using Hazan

and Shaver's (1987) measure: 59% secure, 25% avoidant, 11% anxious (a small proportion of individuals were reported as 'unclassified').

The reported test-retest stability of attachment style as measured by Hazan and Shaver's measure is varied (Crowell & Treboux, 1995). This is obviously problematic for a measure purporting to assess a stable construct. Critics of such self-report measures suggest that individuals are not necessarily aware or conscious of their particular attachment patterns and therefore unlikely to be able to report them accurately (Griffin & Bartholomew, 1994).

### **3.3.3 Dimensional approaches to adult attachment**

A further criticism of Hazan and Shaver's (1987) self-report measure is that it attempts to categorise individuals into a particular attachment style, ignoring individual variation within categories (Crowell *et al.*, 1999). Bartholomew (1990) argued that individuals will show more or less agreement to a particular 'style' depending on their various experiences of attachment relationships. Simpson (1990) modified Hazan and Shaver's measure by breaking down descriptions of the three different attachment styles into 13 items which subjects are then asked to rate on a 7-point Likert scale. These were then used to form continuous indices of secure, avoidant and anxious styles (Crowell & Treboux, 1995). Collins and Read (1990) expanded upon this adding further items relating to the availability of the attachment figure. Subsequent factor analyses of self-report attachment scales have revealed two fairly consistent dimensions thought to underpin these measures: attachment anxiety and attachment avoidance (Crowell *et al.*,

1999). Collins and Feeney (2000) examined the impact of these dimensions on support seeking and caregiving in intimate relationship and found attachment avoidance was associated with ineffective support seeking whilst anxious attachment was associated with poor caregiving.

### **3.3.4 Bartholomew's model of adult attachment**

Bartholomew (1990) proposed that these attachment dimensions can be understood in terms of Bowlby's original idea of working models of self and others. Thus attachment anxiety is related to model of self: anxious attachment reflects a negative model of self. Avoidance of attachment on the other hand is related to model of other, thus an individual with a negative 'other' model is more likely to avoid attachment relationships. Further, Bartholomew noted that two distinct types of attachment avoidance emerge from the empirical literature: the narrative approach (AAI) identifying individuals who tend to deny attachment needs, whilst self-report methods have identified a group of individuals who have a 'fear of closeness'. Based on this observation, Bartholomew (1990) suggested that whilst a single avoidant classification is appropriate when considering infant attachment, it does not adequately explain the different patterns of avoidance observed in adult attachment relationships.

Bartholomew (1990) proposed that the different patterns of adult attachment can be organized according to the intersection of model of self and other. Model of self is viewed as positive or negative depending on whether or not the self is perceived to be worthy of love and attention (attachment anxiety). Model of other is viewed as positive

or negative depending on the perceived availability, care-giving and trustworthiness of others (attachment avoidance). Thus “each working model of self in combination with each working model of other defines adult attachment style” (Bartholomew, 1990, p. 163). This leads to four different attachment styles or ‘prototypes’: Secure, preoccupied, fearfully avoidant and dismissive avoidant. The concept of ‘prototype’ is utilised because individuals differ in the degree to which they adhere to, or match a particular style depending on their various attachment experiences (Bartholomew, 1990).

Bartholomew and Horowitz (1991) found that individuals could be reliably distributed among the four prototypes and that each was associated with predictable interpersonal behaviour and problems thus supporting the validity of the model. For example they found that preoccupied individuals tended towards an overly expressive and dominating interpersonal style whilst fearful individuals were overly passive and dismissive individuals reported a lack of warmth in social interactions. In further exploring the validity of the model, Griffin and Bartholomew (1994) adopted a multi-method approach (including self-report, interview and friend-reports) assessing the attachment dimensions of self and other model. They reported support for the convergent and discriminant validity of the dimensions and good construct validity (Griffin & Bartholomew, 1994). It is however notable that Kurdek (2002) failed to find support for the model using confirmatory factor analysis with outcome variables of relationship satisfaction and commitment.

### **3.4 Problems in measuring adult attachment**

Evidently there are some problems in the assessment of adult attachment. Although attachment behaviour can be relatively easily observed in infants, it is much harder to assess in adults (Crowell & Treboux, 1995). There has been a lack of integration in approach to measurement (Griffin & Bartholomew, 1994) and consequently there exists some confusion regarding the different methods of assessing adult attachment and what exactly they measure (Crowell *et al.*, 1999). The two main approaches are interview and self-report; the former purporting to measure the individual's unconscious representations of their attachment figures and the latter, their conscious appraisal of attachment related thoughts, feelings and behaviours. It is argued that the two methods are measuring something qualitatively different (Crowell & Treboux, 1995, Dozier *et al.*, 1999) and indeed when compared, associations between them tend to be limited (Crowell *et al.*, 1999).

Despite this, both approaches have well established utility in the measurement of adult attachment. Crowell *et al.* (1999) highlight the importance of selecting the most appropriate form of measurement depending on particular aspect of attachment being explored and urge consideration of the theoretical underpinnings of the measurement technique used in the interpretation of any subsequent research findings.

### **3.5 Summary**

This chapter has provided an outline of attachment theory and its origins. Attachment behaviour and its function have been described as have the observed individual

differences in the attachment patterns of infants. The concept of adult attachment has been introduced together with some exploration of the different approaches to measurement and the problems inherent within these. Despite some difficulties in the measurement of adult attachment, the literature suggests that particular attachment styles or organisations may influence interpersonal functioning and emotional expression in adult attachment relationships.

## **Chapter Four: Attachment, psychopathology and psychosis**

### **4.1 Attachment and psychopathology**

As the principle developer of attachment theory, Bowlby highlighted the role of attachment in the development of psychopathology:

“...the capacity to make intimate emotional bonds with other individuals, sometimes in the careseeking role and sometimes in the caregiving one, is regarded as a principle feature of effective personality functioning and mental health” (Bowlby, 1988, p.121).

Attachment theory provides a developmental framework for understanding how an individual's early and ongoing close relationships influence their view of the world, their expectations of themselves and others, and their coping strategies used to regulate distress. Successful development of a secure sense of self and adaptive use of attachment figures are likely to protect against the development of psychopathology across the lifespan (Greenberg, 1999). Attachment theory therefore predicts that there will be a relationship between insecure attachment and psychopathology. The evidence for this is now presented with particular emphasis on the relationship between attachment and psychosis.

#### **4.1.1 Attachment and psychopathology in children and adolescents**

The relationship between attachment and childhood/adolescent psychopathology has been supported by empirical studies. Data from the Minnesota Parent-Child Project cited



in Greenberg (1999), revealed a consistent relationship between early insecure attachment and symptoms of depression and aggression in children. In adolescents, Cooper *et al.* (1998) found that both anxious and avoidant adolescents had higher levels of symptomatology than secure adolescents. Rosenstein and Horowitz, (1996) found that dismissing attachment in adolescents was associated with conduct disorder, substance misuse and antisocial and paranoid personality traits. Preoccupied attachment on the other hand was associated with affective disorders and borderline personality traits (among others). This would lend support to Dozier *et al.*'s (1999) proposal that avoidant individual's use of minimising strategies predispose externalising disorders whilst preoccupied/ambivalent individual's use of maximising strategies are linked to internalising psychopathology such as affective disorders.

#### **4.1.2 Attachment and psychopathology in adults**

Fonagy *et al.* (1996) conducted a relatively large study comparing 82 psychiatric inpatients with 85 matched controls and found significant differences between the two groups in their attachment representations (using the AAI). In particular they found high proportions of preoccupied and unresolved classifications in the psychiatric group. In terms of specific diagnoses, anxiety disorder was significantly associated with unresolved classification. Compared to other affective disorders, individuals with bipolar disorder were more likely to be classified as dismissive. Further, borderline personality disorder was associated with both preoccupied and unresolved attachment status (Fonagy *et al.*, 1996). Patrick *et al.* (1994) also reported high rates of preoccupied attachment in individuals with borderline personality disorder. Ward *et al.* (2006) found

that attachment representation was associated with psychopathology in women in a non-psychiatric sample. They administered the Structured Clinical Interview for DSM-III-R (SCID-I) to a larger sample to identify a group who met diagnostic criteria for a psychiatric illness ( $n = 30$ ) and a group who did not ( $n = 30$ ). They were then all interviewed using the AAI. Ward *et al.* (2006) reported that those with insecure (non-autonomous) attachment were more likely to receive a SCID diagnosis. They found that 63% assessed as dismissive and 100% of women assessed as preoccupied with respect to attachment received a psychiatric diagnosis. These findings are rather striking but given the relatively small sample in each group it would be interesting to see if this finding could be replicated in a larger sample.

Using data from the National Co-Morbidity Survey in North America, Mickelson *et al.* (1997) found strong relationships between insecure attachment (Hazan & Shaver's self-report measure, 1987) and various psychiatric disorders across a nationally representative sample. They found that both avoidant and anxious attachment styles were associated with depressive disorders and anxiety disorders. Further, avoidant attachment style but not anxious attachment style was associated with alcohol abuse and drug dependence. In the same sample, Enns *et al.* (2002) compared data from the Parental Bonding Instrument (PBI), which assesses perceptions of early caregiving by parents (attachment figures), with rates of adult psychopathology. They reported a small but statistically significant relationship between perceived lack of care in parenting relationships and various forms of adult psychopathology.

## **4.2 Attachment and psychosis**

### **4.2.1 Empirical evidence**

As indicated above, research suggests a link between insecure attachment and general psychopathology. Similarly there appears to be an association between insecure attachment and psychotic disorders. Dozier (1990) for example, found that individuals with psychotic disorders were less likely to be secure in their attachment organization than those with affective disorders. Tyrrell and Dozier (1997) (cited in Dozier *et al.* 1999) reported 89% of their schizophrenia sample was classified as dismissive with respect to attachment and almost half also received an unresolved classification. However, Dozier *et al.* (1999) urge caution in the interpretation of AAI classifications in individuals with schizophrenia as the experience of thought disorder may interfere with the narrative they provide.

Using the Parental Bonding Instrument (PBI) and the Relationship with Family of Origin Scale (REFAMOS), Rankin *et al.* (2005) found that paranoid patients, both currently ill and remitted, reported low parental care and over-protectiveness during childhood. Patients also gave negative accounts of their current relationships with parents.

In their study using data from the National Co-Morbidity Survey (aforementioned), Mickelson *et al.* (1997) found a significant relationship between schizophrenia and insecure attachment, particularly avoidant attachment. Interestingly, whilst most other psychiatric disorders were negatively related to secure attachment, they failed to find a

significant negative relationship between schizophrenia and secure attachment. More recently Ponizovsky *et al.* (2007) reported higher proportions of insecure attachment (Hazan & Shaver's self-report measure, 1987) among individuals with schizophrenia compared to age-matched controls, with over half identifying themselves as avoidant in their attachment style. However their use of Hazan and Shaver's measure which focuses on attachment in romantic relationships may not be the most appropriate measure of attachment for such a sample. Firstly the schizophrenia group consisted of 30 unmarried (24 single, 6 divorced) patients with schizophrenia compared to the control group of which half were married. Secondly, the schizophrenia sample had spent on average, five and a half years in hospital which presumably reduces opportunity to experience romantic relationships.

#### **4.2.2 The development of a specific attachment measure for psychosis**

Berry *et al.* (2006) highlighted some the above problems with the existing measures of attachment in individuals with psychosis. Namely, that the coherence of AAI narratives may be confounded by the symptoms of psychosis and that self-report measures, which focus on attachment in romantic relationships may be less applicable for a population who tend to be socially isolated and less likely to be involved in a romantic relationship. They developed a new measure designed to assess attachment specifically in individuals with psychosis: The Psychosis Attachment Measure (PAM, Berry *et al.*, 2006). This is a self-report measure based on existing measures of attachment including the Relationship Questionnaire (Bartholomew & Horowitz, 1991). It focuses on the attachment dimensions of avoidance and anxiety. It does not refer specifically to romantic

relationships but instead requires the respondent to consider close interpersonal relationships.

#### **4.2.3 Initial findings using the Psychosis Attachment Measure (PAM)**

Using the PAM, Berry *et al.*, (2006) found a relationship between schizotypy (non-clinical psychotic phenomena) and insecure attachment. Specifically they found associations between attachment anxiety and positive psychotic phenomena and between attachment avoidance and social anhedonia. In a clinical sample, Berry, Wearden, *et al.*, (in press) found that attachment avoidance was associated with both paranoia and negative symptoms whilst no significant association between attachment anxiety and positive symptoms was found. Levels of attachment avoidance and attachment anxiety remained relatively stable over 6 months and were not affected by remission of symptoms. Berry, Wearden *et al.* (in press) highlight the importance of controlling for the potential confounding variable of symptom severity when measuring attachment in individuals with psychosis. There have not yet been any studies published comparing PAM scores between individuals with psychosis and non-psychotic controls. This would be useful in determining whether there are in fact any differences between these populations in their scores on attachment avoidance and attachment anxiety using the PAM.

#### **4.3 Attachment theory as a framework for understanding psychosis**

Berry *et al.* (2007a) propose that attachment theory may provide a useful framework for understanding psychosis. Specifically they suggest that attachment theory can be used to



conceptualise the development and influence of cognitive, interpersonal and emotional factors in the onset and maintenance of psychosis.

#### **4.3.1 The impact of early experiences**

Cognitive models of psychosis hypothesise that early adverse experiences and trauma lead to the development of negative schema which in turn increase the likelihood that anomalous experiences will be interpreted as threatening (Garety *et al.*, 2001). In a study exploring the relationship between attachment, perceptions of parenting (PBI) and early trauma in individuals with psychosis, Berry, Barrowclough *et al.* (in press) found that perceived parental 'low care' predicted avoidant attachment in adult relationships. They conclude that perceived lack of care in early attachment relationships may lead to an avoidant attachment style which in turn fosters negative perceptions of others. It is worth noting that they failed to find any association between reported childhood trauma and avoidant attachment. They suggest this may be because avoidant individuals have a tendency to underreport problems.

#### **4.3.2 Core beliefs and attachment**

Wearden *et al.* (2008) explored the role of attachment (measured using the PAM) in the development of core beliefs or schema, implicated in the cognitive model of psychosis. They found that negative core beliefs about the self and reports of inconsistent maternal care-giving were associated with anxious attachment. There was a relationship between negative core beliefs about others and avoidant attachment however this was not significant when negative affect was controlled for. The authors comment that

reluctance in reporting negative beliefs about others may be related to social desirability. The findings of the study offer some limited support for their hypothesis that attachment representations may precede and influence the development of core beliefs. Wearden *et al.* (2008) acknowledge that other variables are also likely to influence their development. Given that research suggests gender may be important in attachment style (Greenberg, 1999), a limitation of the study was the overrepresentation of females (73%) in the sample.

#### **4.3.3 Paranoia and attachment**

The cognitive model suggests that adverse early life experiences influence the development of negative core schema which in turn may be associated with the formation of persecutory delusions (Freeman & Garety, 2004). Bentall *et al.* (2001) proposed a relationship between insecure early attachments and the development of paranoid thinking. Berry, Wearden *et al.*'s (in press) findings offer some support for this with associations between avoidant attachment and paranoia in a clinical sample. MacBeth *et al.* (2008) found associations between both attachment avoidance and anxiety and paranoid ideation in a non-clinical sample. They also found that interpersonal distancing (distancing/ hostile interpersonal behaviour) was associated with both these factors. They argue that in the absence of the sense of 'safety' associated with secure attachment, individuals with insecure attachment are predisposed to attend to threat. Paranoid thinking is a potential consequence of this and coupled with distancing/ hostile behaviour is likely to maintain the sense of threat.

#### **4.3.4 Interpersonal problems and attachment**

As outlined in chapter one, social and interpersonal problems are core features of schizophrenia (Birchwood & Jackson, 2001; Penn *et al.*, 1997). Attachment may be important in understanding these difficulties. The theory suggests that as a consequence of early relationships, individuals develop internal working models of self and others which will influence expectations and behaviour in future relationships (Bowlby, 1977). In a clinical sample, Berry, Wearden *et al.* (in press) found a relationship between attachment avoidance and hostility and between attachment anxiety and 'attention-seeking' behaviour in individuals with psychosis. It is possible that negative models of other, in the context of avoidant attachment, may be relevant in understanding the development of interpersonal problems (e.g. suspiciousness and hostility) which are a prevalent feature of psychosis and are suggested to predate its onset.

#### **4.3.5 Recovery style and attachment**

Early relationships and attachment may also be significant in the individual's adjustment to psychosis and therefore outcome. Drayton *et al.* (1998) found that people with sealing-over recovery style perceived their parents to be less caring than those with an integrative recovery style. Tait *et al.* (2004) found sealing-over was associated with insecure adult attachment. Further individuals with a sealing-over recovery style tend to make more negative self-evaluations. (Drayton *et al.*, 1998; Tait *et al.*, 2004). As previously highlighted, defensive or sealing-over recovery styles are associated with poorer outcome in individuals with psychosis (McGlashan, 1987). Gumley and Schwannauer (2006) highlight the significance of attachment organisation in the help-



seeking behaviour of individuals with psychosis and the potential consequences of this for relapse prevention.

#### **4.4 Summary**

Current research suggests insecure attachment is associated with psychopathology both in children and adults. The link between insecure attachment, particularly avoidant/dismissing attachment style and psychosis has also been established. Problems in the measurement of adult attachment in psychosis have been highlighted and Berry *et al.* (2006) have attempted to address this with the introduction of an attachment measure (PAM) specifically for use with individuals with psychosis. Finally, there appears to be some support for Berry *et al.* 's (2007a) proposal that attachment theory can be used as a framework for understanding the developmental factors involved in the onset and maintenance of psychosis.

## **Chapter Five: Attachment, anger and violence**

### **5.1 The role of attachment in anger and violence**

In Chapter 2, the developmental precursors of violence were discussed. The evidence suggests that negative early experiences such as abuse, neglect, and maternal rejection are risk factors for future violence (Lansford *et al.*, 2007; Raine *et al.*, 1994; Singleton *et al.*, 1998; Widom, 1989). Attachment theory may provide some insights as to why negative early experiences are linked to violence. Some theoretical concepts linking attachment with anger and violence are now outlined, followed by the current empirical evidence supporting the relationship between insecure attachment, anger and violence.

### **5.2 Attachment theory and anger, hostility and violence**

Bowlby (1973) highlighted the emotion of anger in relation to attachment. He suggested that separation from the attachment figure and frustration of attachment needs would inevitably lead to anger and proposed that functionally, this should assist reunion and reduce the chances of further separations. He suggested however that repeated separations or threats of abandonment would lead to violent dysfunctional anger. As the expression of such anger towards the attachment figure might increase the chances of separation, the anger is repressed. Bartholomew (1990) suggested that this masking of anger is seen in avoidant infants who appear 'detached' in response to separation. This repressed anger may be expressed in an indirect way (Bartholomew, 1990) or directed at other targets (Stott, 1950, cited in Bowlby, 1973). This might explain why as Dozier *et al.*'s (1999) suggested, avoidant children are predisposed to develop externalising

disorders such as conduct disorder, characterised by antisocial aggressive behaviour and associated with future offending (Levinson & Fonagy, 2004).

Bowlby's (1969, 1973) concept of internal working models of self and others is also important in understanding anger and hostility towards others. Internal working models (IWMs) which are formed according to early attachment experiences, are purported to influence future interactions with attachment figures (e.g. spouse; therapist) Bowlby (1977). They are also hypothesised to guide general style of social interaction (Bartholomew, 1990). Thus, the experience of a hostile, threatening or rejecting attachment figure will be internalised as a negative working model of other which will not only guide future functioning in attachment relationships but the individual is also likely to perceive others in general as hostile or threatening and respond accordingly in social interactions.

Exploring the role of attachment and violence specifically, Fonagy *et al.* (1997) (cited in Fonagy, 2004) proposed that a deficit in the capacity for mentalisation is linked to propensity for violence. Sharing some similarity with the concept of 'theory of mind' in the cognitive developmental literature, mentalisation is the awareness of our own and others' mental states and the influence these have on behaviour. The term 'reflective function' is used to describe the acquisition of capacity for mentalisation (Gumley & Schwannauer, 2006). The developing infant is initially reliant upon the caregiver to provide this via 'appropriate mirroring' and sensitive caregiving in response to the infant's emotions and actions (Gumley & Schwannauer, 2006). Thus the "the capacity of

mentalisation is a developmental achievement greatly facilitated by secure attachment” (Fonagy, 2004, p.28). According to Fonagy (2004), a problem in conceptualising the mental states of others leads to a failure of the usual mechanisms which inhibit offending behaviour, including violence. Specifically, deficient mentalisation leads to misinterpretation of the actions of others as threatening and problems relating to others empathically.

### **5.3 Evidence of relationship between attachment, anger and violence**

#### **5.3.1 Attachment, anger and hostility**

Findings of increased hostility in avoidant children have already been noted (Sroufe, 1983). In a study of attachment, anger and hostility in a student sample, Mikulincer (1998) found that individuals with secure attachment generally expressed less anger-proneness and more adaptive coping in response to anger. Anxious/ ambivalent individuals reported more difficulty in controlling anger. Avoidant individuals were found to have an accentuated hostile attributional bias and discrepancies in their reported experience of anger compared to relatively high physiological arousal in response to anger stimuli. Mikulincer (1998) described this as ‘dissociated anger’ which in avoidant individuals, he hypothesised to be an attempt to suppress negative affect.

#### **5.3.2 Attachment and aggressive behaviour**

Troy and Sroufe (1987) found that in dyadic play interactions, avoidant infants were more likely to victimise their partner whilst anxious infants were likely to be the victim. In a study involving male undergraduate students, adult attachment avoidance was found

to be associated with coercive sexual behaviour whilst antisociality and aggression were more common among those with anxious adult attachment (Smallbone & Dadds, 2001).

### **5.3.3 Attachment and criminality**

Frodi *et al.* (2001) found an over representation of individuals with dismissive attachment representations (AAI) in a Swedish sample of psychopathic criminal offenders. Ward *et al.* (1996) compared 4 groups of prisoners: child molesters, rapists, violent non-sex offenders and non-violent non-sex offenders using self-report scales (based on Bartholomew's model of adult attachment). They found high levels of insecure attachment across all four groups suggesting insecure attachment as a general vulnerability factor for offending. Sex-offenders against children tended to have either preoccupied or fearful attachment styles whereas rapists tended to be dismissive. Violent non-sex offenders also tended to have dismissive attachment styles, whilst non-violent non-sex offenders were comparatively the most securely attached.

### **5.3.4 Attachment in non-psychotic mentally disordered offenders**

Van Ijzendoorn *et al.* (1997) found that secure attachment was virtually absent in a sample of mentally disordered offenders in a Dutch forensic psychiatric hospital. Levinson and Fonagy (2004) compared a prison psychiatric sample with 2 matched control groups: psychiatric and normal controls. Insecure attachment was significantly more common among the two clinical groups and the prisoners were more likely to be dismissive than the psychiatric control, whereas the psychiatric control group were most likely to be preoccupied with respect to attachment.

In the same study, Levinson and Fonagy (2004) compared the prison group with the control groups in terms of their reflective function (capacity to mentalise). They found that the prisoners had lower reflective function scores than the psychiatric group, whilst the non-clinical group were least impaired. Further, violent offenders compared to non-violent offenders were rated as significantly lower on the reflective function scale.

The findings of Levinson and Fonagy (2004) provide an important contribution to the literature. Firstly they provide evidence of a link between insecure attachment, offending and psychopathology. Secondly they indicate that dismissive attachment specifically, seems to be more prevalent among offenders compared to a non-offender psychiatric sample and non-clinical control group. Finally, their findings support the hypothesis that deficits in mentalisation capacity, as a result of disturbed early attachment, are linked to offending, particularly violent offending (Fonagy, 2004). However, Levinson and Fonagy (2004) excluded individuals with psychotic disorders in their study. It seems therefore that the relationship between attachment and violence in individuals with psychosis has yet to be adequately investigated.

#### **5.4 Summary**

Attachment theory seems to offer some understanding of the influence of developmental factors on the later propensity for anger, hostility and violence. The evidence suggests that insecure attachment is linked to anger problems, hostility, and violence. In common with the research on psychosis and attachment, the particular attachment style or pattern

most commonly associated with violence appears to be avoidant or dismissive attachment.

## **Chapter Six: Rationale and hypotheses**

### **6.1 Rationale for the present study**

Attachment theory appears to offer useful insights into the development and course of psychosis and similarly to the propensity for aggression and violence, both in individuals with, and without mental disorder. The research suggests that dismissive/ avoidant attachment is prevalent among individuals with psychosis and that attachment avoidance is linked with particular psychotic symptoms (e.g. paranoia), and with interpersonal hostility among clinical samples. Insecure attachment and specifically, dismissive/avoidant attachment has also been associated with anger problems, hostility and violence.

Given that a relationship appears to exist between psychosis and violence, it seems that it would be useful to explore the role of attachment and particularly attachment avoidance in this relationship. The aim of the present study is therefore to investigate the association between attachment and violence in individuals with psychosis. The role of anger is also investigated in the present study on the basis that anger problems have been linked to insecure attachment and that they are a significant predictor of violence, particularly in individuals with psychosis. Associations between attachment and both self-reported and observer-rated anger will be investigated. This will be looked at in a sample of individuals obtained from both forensic and non-forensic psychiatric settings. Clinically, these investigations may be useful in understanding violence and anger in



individuals with psychosis. Findings may also have implications for the selection of intervention strategies and for risk formulation and overall risk management.

## **6.2 Hypotheses**

Based on the existing literature, the research hypotheses are as follows:

### **Hypothesis 1:**

Attachment avoidance will be associated with violent/ aggressive behaviour in individuals with psychosis.

### **Hypothesis 2:**

Attachment avoidance will be associated with self-reported anger in individuals with psychosis.

### **Hypothesis 3:**

Attachment avoidance will be associated with observer-rated anger in individuals with psychosis.

Statistical associations will remain when the potential confounding variable of symptom severity is controlled for.

## Chapter Seven: Methodology

### 7.1 Setting

The current study recruited participants from three sites:

#### *Site 1: Special (high security) hospital*

The first site was a special hospital which provides assessment, treatment and care of individuals with mental disorder in conditions of special security. These individuals are deemed to require care under conditions of special security because of their dangerous or violent propensities. The hospital is one of only four of its kind in the UK. It accommodates approximately 170 male inpatients who have been admitted to the hospital under the requirements of the Mental Health (Scotland) Act 2003 and related legislation such as the Criminal Procedures (Scotland) Act 1995. The majority of patients have a primary diagnosis of schizophrenia.

#### *Site 2: Medium secure unit*

The second site was a medium secure unit providing assessment, care and treatment of individuals with mental disorder whom are deemed to require care under conditions of medium security (i.e. lesser security than those in the special hospital). The unit accommodates approximately 40 inpatients. They have also been admitted to hospital under the requirements of mental health legislation. Patients may be admitted to the unit from a number of sources including the community, prison, the police cells, the courts or other hospitals. A substantial proportion of admissions are transfers from the

above special hospital, usually a reflection of progress in treatment and a perceived reduction in the level of risk the individual poses.

### *Site 3: Psychiatric rehabilitation wards*

The third site comprised 3 different psychiatric rehabilitation wards based within a larger psychiatric hospital. As the name suggests, these wards provide a period of rehabilitation for individuals with severe and enduring mental illness prior to returning to the community. Patients in these wards may be detained under the Mental Health (Scotland) Act 2003, or they may be there as an 'informal' patient (i.e. voluntary). The wards are not locked. At the time of the research being conducted, the 3 wards accommodated a total of 53 inpatients, 39 of whom were male.

## **7.2 Design**

The research design was correlational. The measures were administered via face to face interview.

## **7.3 Inclusion criteria**

Across the three sites, patients were included in the study if they were currently receiving in-patient care from mental health services and had a documented diagnosis of schizophrenia, schizoaffective or delusional disorder (ICD-10, 1992).

#### **7.4 Exclusion criteria**

Patients were excluded from the study if they had any significant brain injury or severe intellectual disability. Potentially, patients with these types of disability would have difficulty completing the measures. Patients were also excluded if they had a diagnosis of autistic spectrum disorder on the basis that the associated social deficits are likely to confound any measure of attachment. Patients with any conviction for sexual offences against children were also excluded from the study because perpetrators of such offences tend to differ from violent offenders in a number of ways, including their attachment styles (Ward *et al.*, 1996).

Further, those patients unable to provide informed consent were excluded for ethical reasons. Non-English speaking patients were also excluded.

#### **7.5 Sample size estimation**

Originally, the researcher planned to use multiple regression for the analyses. A sample size of 82 was calculated using Tabachnick and Fidell's (1996) formula for assessing sample size for multiple regression (sample size =  $50 + [8 \times n]$ ). However, when the recruitment process began it became clear that the readily available population was smaller than anticipated once exclusions and ethical considerations were taken into account. A number of recruitment problems were also encountered. For these reasons, a correlational design was adopted instead. Thus a sample size of  $n = 40$ , with power of .80 and an alpha of 0.05 would be sufficient to detect medium effect sizes.

## **7.6 Sample**

At the special hospital, 64 patients were identified as meeting criteria for inclusion in the study. Of these, 54 were approached (10 patients from one ward were not approached because the ward manager had concerns about the implications of the data collection process on staffing resources). Of the 54 approached, 24 (44%) participated. Keyworkers (or equivalent) were also approached to obtain observer-rated data. Twenty-three of the 24 agreed to take part (one individual was happy to meet with the researcher but did not wish to sign a consent form and so could not be included in the study). In the medium secure unit, 31 patients were identified as suitable and 12 (39%) eventually participated. A further 12 keyworkers participated. In the psychiatric rehabilitation wards, 15 patients were identified as suitable and 3 (18%) participated. Keyworkers for each of these patients also took part.

## **7.7 Ethical considerations**

Permission to carry out the study was sought and granted by the local Research Ethics Committee (Appendix I). Approval was also granted from the relevant Research and Development Management Committees to conduct the research study within the health board areas (Appendix II).

The population studied are considered vulnerable, firstly because they have a diagnosis of mental illness and secondly because the majority are compulsorily detained in hospital, thus the following ethical issues were considered prior to undertaking the research study:

### **7.7.1 Informed Consent**

Freely given informed consent refers to the individual willingly agreeing to take part in a research study having been informed of all aspects of the study relevant to their decision to participate (NHS National Patient Safety Agency, 2007). For some individuals the experience of mental illness, particularly if acutely unwell, might compromise their ability to understand information and make such a decision. This was addressed in the recruitment process by asking consultant psychiatrists (Responsible Medical Officers-RMOs) to identify individuals suitable to approach for the study. They were asked to exclude anyone unable to give informed consent.

Potential participants were provided with a Participant Information Sheet (see Appendix V) which provided details about the study. However literacy difficulties are common among this population, as are cognitive impairments associated with severe mental illness. The researcher therefore arranged to meet with individuals who expressed initial interest in the study to go through the information sheet and discuss any issues or answer any questions they may have had. This was to ensure they fully understood all relevant aspects of the study.

### **7.7.2 Obligation to participate**

Another ethical consideration was whether participants may feel obliged to take part in the study. This was addressed by ensuring the initial approach to potential participants was made by someone other than the researcher. Also, if participants did agree to meet

with the researcher to discuss the study further, it was made clear to them that their decision to participate was voluntary and that it would have not impact on their care or treatment. This was also stated on the participant information sheet. Finally, RMOs and clinical teams were not made explicitly aware of which patients decided to participate or not.

### **7.7.3 Distress**

A further ethical issue was the possibility that patients might be distressed during the interview, particularly as the procedure involved discussing current psychotic symptoms. It was considered important to make potential participants aware of this possibility and a statement to this effect was included in the participant information sheet. It was also stated that although their responses to the questionnaires would be treated as confidential, if they appeared distressed during the interview, the researcher would provide feedback to nursing staff alerting them to this.

### **7.7.4 Risk of violence**

An issue raised by the ethics committee was potential risk of harm to the researcher, given the population being studied. This was discussed and the researcher confirmed that all relevant safety policies and procedures would be adhered to. For example, the researcher being appropriately trained in the use of prevention and management of aggression techniques; checking with nursing staff prior to meeting with participants to ensure they were not unduly unsettled and where necessary, wearing a personal attack alarm.

## **7.8 Procedure**

Letters were sent to consultant psychiatrists working in the above settings (excluding those exclusively working with patients with intellectual disability) providing them with information about the study (Appendix III). They were invited to identify potential participants who met the criteria for the study. Consultant psychiatrists were approached in the first instance as their role as RMO for patients necessitates that they oversee any contact with their patients, for clinical as well as research purposes. Further, the RMOs were also likely to be sufficiently knowledgeable of their patients to consider the inclusion and exclusion criteria of the study.

Once the names of suitable patients were identified by the RMOs, the researcher contacted either a member of nursing staff on their ward or a member of their clinical team (e.g. assistant psychologist) and asked them to approach the individual about the study. They were asked to give the potential participant a letter from the researcher (Appendix IV) and the participant information sheet (Appendix V). Having had an opportunity to consider the information, patients were asked by the individual who had approached them if they would be willing to meet the researcher to discuss the study. If agreeable, the researcher met them on the ward to go over the participant information sheet and to answer any questions. For those willing to participate, the researcher arranged a suitable time to meet to complete the measures.



Prior to meeting the participant, the researcher spoke to nursing staff on the ward to ensure the individual was settled and it was appropriate to meet with them at that time. All necessary procedures were followed to ensure the safety of the participant and the researcher. The researcher first checked whether the participant had any further questions or queries and where applicable, these were answered. The participant was then asked to sign a consent form (Appendix VI) confirming their agreement to take part in the study, and their consent to the researcher subsequently meeting with their keyworker and accessing their case notes. The researcher then administered 3 measures (described in the following section), reading aloud the questionnaire items and recording the participants' responses. Questionnaire items were read aloud and scored by the researcher in preference to asking the participants to complete the measures independently because of the previously noted high prevalence of literacy difficulties among this population. It took approximately 40 minutes to complete the measures with each participant.

Having met with the participant, the researcher arranged to meet separately with the participant's keyworker or a member of nursing staff who was sufficiently familiar with the patient (when keyworkers were unavailable due to shift patterns or sick leave). At this meeting they too were asked to sign a consent form confirming their agreement to participate (Appendix VI). They then completed a brief measure independently and a second measure in collaboration with the researcher (described in the following section). The second measure necessitated collaboration as the researcher had been trained in its

use, whilst not all staff had received this training, or were familiar with the instrument. This part of the procedure took approximately 15 minutes.

Finally, participants' case notes were accessed by the researcher to obtain demographic information.

## **7.9 Measures**

### **7.9.1 Participant measures**

The first three measures were administered in the following order during face to face interviews with patient participants (Appendix VII).

#### **The Psychosis Attachment measure (PAM) (Berry *et al.*, 2006)**

The PAM is a 16 item self-report questionnaire measuring attachment avoidance (8 items) and attachment anxiety (8 items). The measure was developed specifically to measure adult attachment in individuals with psychosis. The items refer to thoughts, feelings and behaviours in relation to the respondents' key relationships. Respondents are asked to rate on a four-point Likert scale (0-3), the degree to which each item statement is characteristic of them. The scale ranges from 'not at all like me' to 'very much like me'. Scores are calculated for both the avoidance and anxiety subscales by averaging individual item scores, with higher scores indicative of greater attachment avoidance or attachment anxiety. The PAM has been shown to have good psychometric properties in non-clinical samples (Berry *et al.*, 2006). In clinical samples, Berry *et al.* (2007b) report good internal reliability (anxiety scale  $\alpha = .82$ ; avoidance scale  $\alpha$

= .76) and test-retest reliability comparable with existing measures (interclass correlation coefficients: anxiety scale = .71; avoidance scale = .56). Berry *et al.* (2006) report concurrent validity for the PAM based on significant correlations between the anxiety and avoidance subscales and an existing adult attachment measure, the Relationship Questionnaire (RQ: Bartholomew & Horowitz, 1991). Construct validity is supported by significant associations between attachment anxiety/avoidance, interpersonal problems and self-esteem (Berry *et al.*, 2006).

### **The Novaco Anger Scale and Provocation Inventory (NAS-PI) (Novaco, 2003)**

The NAS-PI is a self-report measure of anger consisting of two parts. The first part, the Novaco Anger Scale (NAS) consists of 60 items across 4 sub-scales. It measures psychological aspects of anger. Three sub-scales: Cognitive (NAS-COG) measuring anger engendering thoughts; Arousal (NAS-ARO) focusing on the physical experience of anger; and Behavioural (NAS-BEH) measuring problematic angry behaviours, combine to give a NAS Total score (48 items). A fourth sub-scale measures Anger Regulation (NAS-REG), the adaptive ability to regulate the experience of anger, and does not contribute to the NAS Total score. Items are rated on a 3 point scale (1-3): 'never true', 'sometimes true' and 'always true' of me. The second part of the measure is the Provocation Inventory which contains 25 items. It asks the respondent to rate anger-provoking situations in terms of how angry each situation would make them. Items are rated on a 4 point scale (1- 4) ranging from 'not at all angry' to 'very angry'. High scores on the PI indicate high levels of anger (Novaco, 2003).

The NAS-PI has been reported to have good psychometric properties. In terms of reliability, Novaco (2003) reported good internal consistency with alphas of .94 and .95 for the NAS Total and the PI respectively, and alpha values .76 or above for the NAS sub-scales. Novaco (2003) also reported good test-retest reliability with the measure with values in excess of .76 for NAS Total and a value of .82 for the PI.

Concurrent validity is reported by Novaco (2003) with NAS Total scores correlating highly with existing anger measures such as the Spielberger Trait Anger Scale (STAXI: Spielberger *et al.*, 1983). In terms of predictive validity, retrospective analysis revealed the number of previous violent convictions was correlated with NAS Total score ( $r = .34$ ) (Novaco, 1994). In prospective analyses, NAS scores have been found to be predictive of assaultative behaviour both within hospital (Novaco & Renwick, 1998) and after discharge into the community (Monahan *et al.*, 2001).

### **The Psychotic Symptoms Rating Scale- PSYRATS (Haddock *et al.*, 1999)**

The PSYRATS was developed in order to measure symptom severity across different dimensions of two key psychotic experiences: Auditory hallucinations and delusions. Its clinical usefulness is in measuring the possible psychological processes underlying the expression of such symptoms and in monitoring progress of these over time (for example during therapy) (Haddock *et al.*, 1999). It is made up of two scales: The auditory hallucination scale (AH) measuring symptom severity across 11 items, including frequency, duration, controllability and degree of negative content. The delusions scale (DS) consists of 6 items, assessing dimensions of delusions such as

preoccupation, conviction and distress. The scales are administered during interview with the subject and the interviewer rates the items according to the individual's responses. Items on both scales are rated using a five point ordinal scale (0-4). Both the AH and DS scales have been shown to have good inter-rater reliability with reliability coefficients in excess of .78 for each item (Haddock *et al.*, 1999). They have good test-retest reliability with inter-class correlations of .70 for both scales. Finally, both scales correlated predictably with an existing measure of psychotic symptoms (PANSS) establishing construct validity of the measure (Drake *et al.*, 2007). For the purposes of this study, the scores from the two scales were summed and used as a measure of symptom severity.

### **7.9.2 Observer measures**

The final two measures were completed by, or in conjunction with, keyworkers. Copies of these measures can be found in Appendix VII.

#### **The Ward Anger Rating Scale (WARS) (Novaco, 1994)**

The WARS is an observer-rated scale consisting of two parts: Part A considers aggressive/ antagonistic behaviours and consists of 18 items. For example 'had a temper tantrum', 'physically attacked someone'. Raters are asked to give dichotomous ratings ('yes' or 'no') to whether the subject exhibited the behaviour over the past 7 days. The scale has been found to have good inter-rater reliability and good concurrent and predictive validity (Novaco & Renwick, 2002 cited in Taylor *et al.*, 2004).

Part B measures 7 affective-behavioural attributes related to anger. It uses ratings on a 5-point scale from 0 (not at all) to 4 (very often), asking the rater to consider the subject's presentation over the previous 7 days. The sum of the 7 items provides an anger index. Novaco and Renwick (2002) (cited in Taylor *et al.*, 2004) found the anger index to have high internal consistency (Cronbach alpha = .88) and good inter-rater reliability (interclass correlation = .82). The anger index has also been found to have good concurrent, retrospective and predictive validity (Novaco & Taylor, 2004).

#### **The Behavioural Status Index- (BSI Index): Risk Sub Scale (Reed *et al.*, 2000)**

The BSI is a behaviourally-based assessment instrument designed to assess characteristics and skills of patients in psychiatric settings. It consists of 6 sub-scales but only the Risk sub-scale was used in the present study. This focuses specifically on behaviours normally associated with risk in a forensic context (Woods *et al.*, 2004). The Risk sub-scale comprises 20 items including family support, violence towards others, verbal aggression and substance misuse. Items are scored counter-intuitively on 5 point scale where 1 = worst case and 5 = best case, thus higher scores are indicative of lower risk. The researcher received specific training in the administration and scoring of the risk sub-scale. Scoring is done with reference to a manual with clearly stipulated scoring criteria.

For the purposes of the present study, the measure was adapted. Firstly some adjustment to the scoring criteria was necessary in order reflect the time period being assessed (the past year). In addition, only the items directly measuring violence were used in the final

analyses. Within this, two outcome measures were created: 'physical violence' and 'violence-aggression'.

The first outcome measure of 'physical violence' included only those items pertaining to physical violence. These were:

Item 2: Serious violence to others without an apparent trigger

Item 3: Serious violence to others following trigger event

Item 4: Minor violence to others without an apparent trigger

Item 5: Minor violence to others following trigger event

A maximum score of 20 was possible for physical violence which would indicate no physical violence in the last year. Scores below 20 indicate some violence in the last year, with lower scores indicating greater severity and frequency.

The second outcome measure of 'violence-aggression' was included to accommodate for potentially low-rates of physical violence (as reported by Doyle & Dolan, 2006, with a comparable population). Thus violence-aggression included acts of verbal aggression and aggression directed towards the environment, in addition to physical violence. The violence-aggression score was obtained by summing the scores on the previous items (2-5), in addition to following additional items:

Item 8: Verbal aggression without an apparent trigger

Item 9: Verbal aggression following trigger event

Item 10: Attacks on objects without an apparent trigger

Item 11: Attacks on objects following trigger event

A maximum score of 40 was obtainable for violence-aggression. Again a maximum score would reflect no violence or aggression in the last year.

These amendments to the use of the measure were made in consultation with one of the authors of the instrument, V. Reed (personal communication, 14 May 2008).

The BSI has been found to have good psychometric properties (Reed *et al.*, 2000). Item analysis of the risk sub-scale has established good internal consistency and test-retest reliability has also been found to be robust (V. Reed, personal communication, 14 May 2008). The test-retest reliability correlations for the specific items used in the present study have previously been found to be in excess of .39 ( $p < .01$ ) (V. Reed, personal communication, 14 May 2008). However, the general psychometric properties for the measure, as it is used in the present study are not known.



## Chapter Eight: Results

### 8.1 Data analyses

The distributions of data for the attachment anxiety subscale (PAM) and the observer-rated anger scale (WARS) were found to be positively skewed and were therefore transformed using the square root of each value as recommended by Clark-Carter (1997). In both cases this transformed the data sufficiently to allow parametric tests to be used (see Appendix VIII). Associations between attachment dimensions and self-reported anger and observer-rated anger were examined using Pearson's Product Moment Correlation. In measuring physical violence (BSI Risk sub-scale Items 2-5) and violence-aggression (BSI Risk sub-scale items 2-5 and 8-11), a large proportion of participants received maximum scores (i.e. no violence in the last year). The data were skewed so markedly that transformations had little effect and so the variables were dichotomised as physical violence either 'present' or 'absent' and violence-aggression either 'present' or 'absent'. Independent t-tests between the groups were calculated. The equivalent point-biserial correlation was also calculated to show the effect size.

Data for the symptom severity variable (PSYRATS) was extremely non-normal in its distribution. For this reason the planned use of conventional partial correlation to control for symptom severity could be misleading. Instead, the association of symptom severity with the attachment, violence and anger variables was examined using chi squared. Where expected frequencies were  $<5$  a modified version of the  $\chi^2$  test was calculated as recommended by Clark-Carter (1997). Correlations were calculated using phi, in the

case of  $2 \times 2 \chi^2$  tests and with Cramer's  $v$  in  $2 \times 3 \chi^2$  tests. The partial correlations were also calculated and are reported in Appendix IX.

Finally, one subject was lost for the observer-rated variables (physical violence, violence-aggression and observer-rated anger) because the keyworker declined to participate. For the analyses involving these variables  $n = 38$ . For all other analyses  $n = 39$ .

## **8.2 Sample characteristics**

The sample size was 39, all male with a mean age of 38 (SD = 10.1). The majority had a diagnosis of schizophrenia: 87.2% ( $n = 34$ ). Of these, 24 individuals (62% of the overall sample) had a specific diagnosis of paranoid schizophrenia whilst the other 10 had a generic diagnosis of schizophrenia. Of the remaining participants, 7.7% ( $n = 3$ ) had a diagnosis of schizoaffective disorder and 5.1% ( $n = 2$ ) were diagnosed as having delusional disorder. The sample was White/Scottish in ethnicity except for one individual who was Italian/British. The majority of participants were currently detained in a special hospital (61.5%,  $n = 24$ ), 30.8% ( $n = 12$ ) were in a medium secure unit and 7.8% ( $n = 3$ ) resided in psychiatric rehabilitation wards. Almost all were detained in hospital under mental health legislation: 59% ( $n = 23$ ) were detained on a compulsion order with restrictions (CORO); 5.1% ( $n = 2$ ) were detained on a compulsion order without restrictions (CO); 15.4% ( $n = 6$ ) had been transferred from prison on a transfer for treatment direction (TTD); 17.9% ( $n = 7$ ) were detained on compulsory treatment order (CTO) and finally 2.6% ( $n = 1$ ) were informal.

The participants had a range of index offences (see Figure 8.1). The modal offence was murder/culpable homicide. Where the participants had multiple offences, only their most serious is shown.

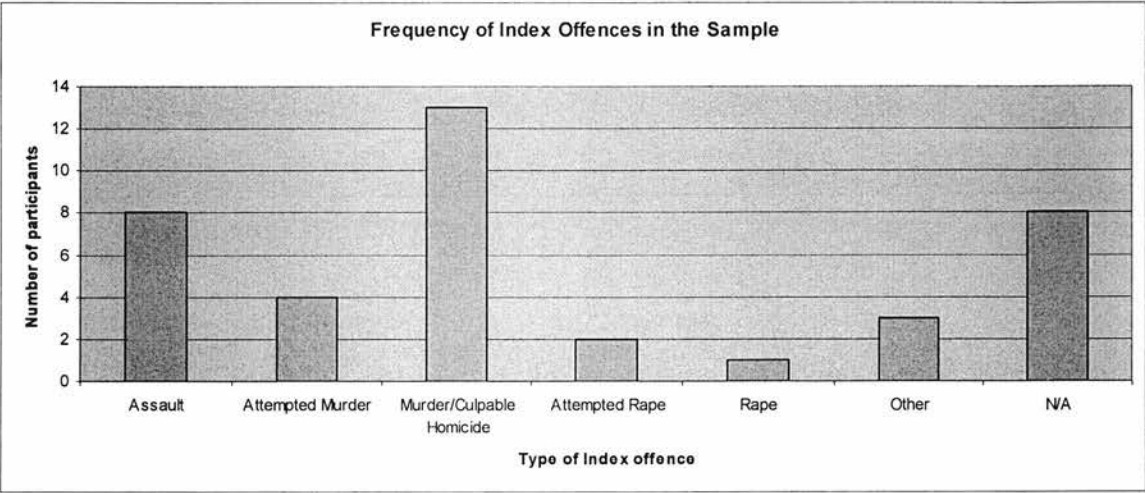


Figure 8.1: Frequency of index offence type among participants.

Index offence is not applicable in the case of the informal participant, nor for those detained on a CTO as this is a civil detention.

### 8.3 Main hypotheses

The results of the main hypotheses are now presented in turn. A summary table of the correlation coefficients for the analyses can be found in Appendix IX. The means, standard deviations and other descriptive data for each variable are provided in Appendix X.

#### 8.3.1 Hypothesis one: Attachment avoidance will be associated with violent, aggressive behaviour in individuals with psychosis.

##### *Attachment avoidance and physical violence*

The first analysis compared attachment avoidance and physical violence only. The mean score of attachment avoidance was higher in those with a recent history of physical violence (mean = 1.49, sd = .53, n = 9) than those with no recent history of physical violence (mean = 1.21, sd = .35, n = 29). However an independent t-test found this difference was not statistically significant ( $t = 1.83$ ,  $df = 36$ ,  $p = .075$ ). The equivalent point-biserial correlation for the association between attachment avoidance and physical violence is .29.

##### *Attachment anxiety and physical violence*

An independent t-test revealed no significant differences in mean attachment anxiety between those with a recent history of physical violence (mean = .79, sd = .47, n = 9) and those without (mean = .74, sd = .28, n = 29) ( $t = .36$ ,  $df = 36$ ,  $p = .721$ ). The

equivalent point-biserial correlation between attachment anxiety and physical violence is .06.

#### *Attachment avoidance and violence-aggression*

A second analysis examined the relationship between attachment avoidance and the outcome measure of violence-aggression (which included verbal aggression and attacks on objects in addition to physical violence). An independent t-test found no significant differences in attachment avoidance between those with a recent history of violence-aggression (mean = 1.33, sd = .45, n = 21) compared to those with no recent history violence-aggression (mean = 1.20, sd = .36, n = 17) ( $t = 1$ ,  $df = 36$ ,  $p = .324$ ). The equivalent point-biserial correlation for the association between attachment avoidance and violence-aggression is .16.

#### *Attachment anxiety and violence-aggression*

There were no significant differences in attachment anxiety between those with a recent history of violence-aggression (mean = .80, sd = .36, n = 21) and those without (mean = .70, sd = .288, n = 17) ( $t = .92$ ,  $df = 36$ ,  $p = .364$ ). The equivalent point-biserial correlation of the association between attachment anxiety and violence-aggression is  $r = .15$ .

**8.3.2 Hypothesis two: Attachment avoidance will be associated with self-reported anger in individuals with psychosis.**

*Attachment avoidance and self-reported anger (NAS Total score)*

A Pearson’s product moment correlation revealed a significant association between attachment avoidance and self-reported anger ( $r = .39$ ,  $p = .015$ ). The data is presented as a scatter plot in Figure 8.2.

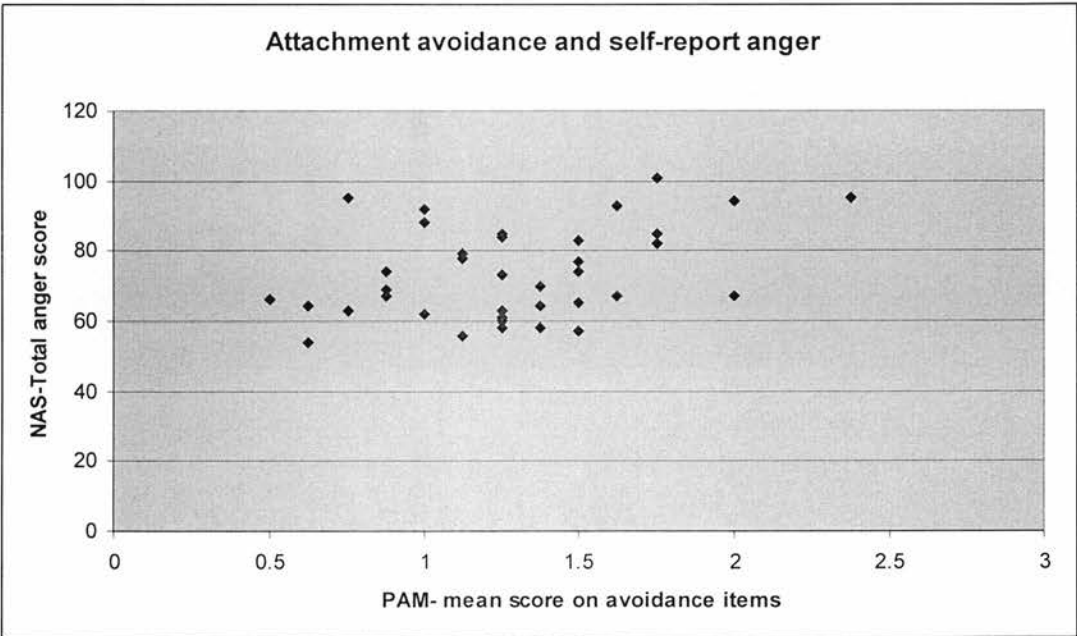


Figure 8.2: Scatter plot of the association between attachment avoidance and self-reported anger.

*Attachment anxiety and self-reported anger*

Attachment anxiety was not associated with self-reported anger ( $r = .09$ ,  $p = .559$ ).

**8.3.3 Hypothesis three: Attachment avoidance will be associated with observer-rated anger in individuals with psychosis.**

A Pearson’s product moment correlation revealed no association between attachment avoidance and observer-rated anger ( $r = .06$ ,  $p = .714$ ). Figure 8.3 shows the scatter plot of the data.

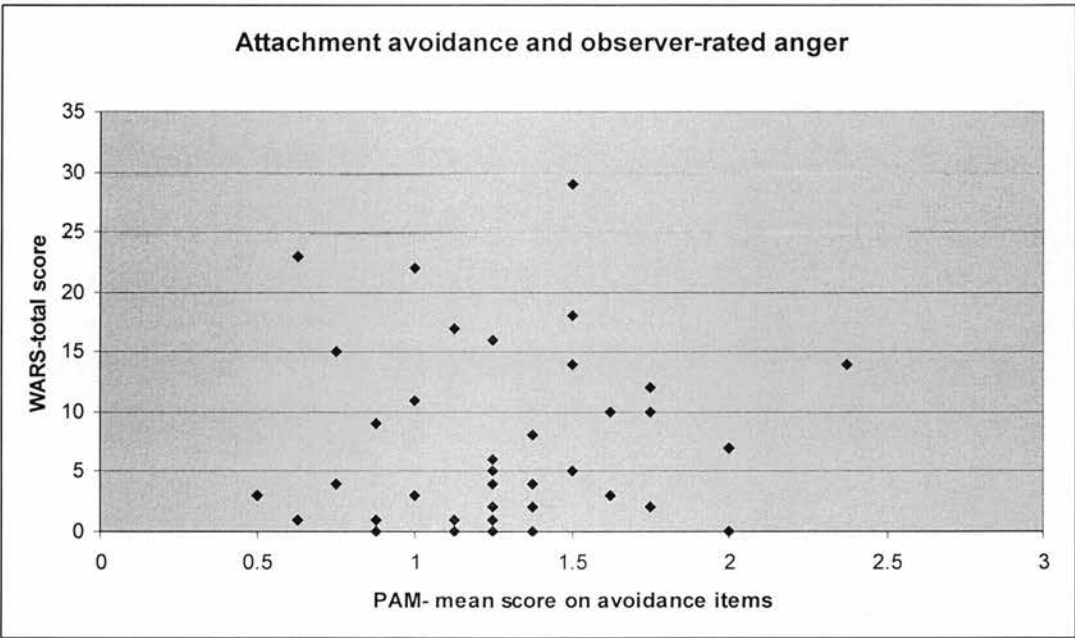


Figure 8.3: Scatter plot of the association between attachment avoidance and observer-rated anger.

Further analyses examining the two parts of the WARS separately (WARS A- aggressive/antagonistic behaviour and WARS-B Anger Index) found that neither was associated with attachment avoidance (Appendix XI).

#### *Attachment anxiety and observer-rated anger*

Attachment anxiety and observer-rated anger were not associated ( $r = .15$ ,  $p = .354$ ).

### **8.4 The influence of psychotic symptoms on attachment, violence and anger**

Chi squared was used to examine the associations between psychotic symptoms and each of the main variables in turn:

#### *Attachment avoidance and psychotic symptoms*

Using a  $2 \times 2$   $\chi^2$  test, there was no significant associations between attachment avoidance (low vs. high) and presence of psychotic symptoms (absent vs. present) ( $\chi^2 = 1.86$ ,  $df = 1$ ,  $p = .173$ ,  $\phi = -0.22$ ).

#### *Attachment anxiety and psychotic symptoms*

A modified  $2 \times 2$   $\chi^2$  test (due to small frequencies) revealed no significant associations between attachment anxiety (low vs. high) and psychotic symptoms (absent vs. present) ( $\chi^2 = .01$ ,  $df = 1$ ,  $p > .90$ ,  $\phi = .02$ ).

#### *Physical violence and psychotic symptoms*

Again using a modified  $2 \times 2$   $\chi^2$  test, there were no significant associations between physical violence (absent vs. present) and psychotic symptoms (absent vs. present) ( $\chi^2 = .0544$ ,  $df = 1$ ,  $p > .30$ ,  $\phi = -.12$ ).



#### *Violence-aggression and psychotic symptoms*

A 2x2  $\chi^2$  test found no significant association between violence-aggression (absent vs. present) and psychotic symptoms (absent vs. present) ( $\chi^2 = 1.11$ ,  $df = 1$ ,  $p = .467$ ,  $\phi = -.17$ ).

#### *Self-reported anger and psychotic symptoms*

A 3x2  $\chi^2$  test compared self reported anger (low, medium & high) among those with and without psychotic symptoms. No significant associations were found ( $\chi^2 = 2.77$ ,  $df = 2$ ,  $p = .250$ , Cramer's  $\phi = .27$ ).

#### *Observer-rated anger and psychotic symptoms*

A 2x2  $\chi^2$  test compared observer-rated anger (low vs. high) in individuals with and without psychotic symptoms. A significantly greater proportion of individuals with low observer-rated anger reported no psychotic symptoms ( $\chi^2 = 6.39$ ,  $df = 1$ ,  $p = .012$ ,  $\phi = -.41$ ).

As shown, only one of the associations was significant and a possible explanation for this is discussed in the following chapter. Although it seemed unlikely that the planned partial correlations for symptom severity would show any important moderating effects, they were calculated and are reported Appendix IX. As anticipated, no moderating effects were found for the main analyses.

**8.5 Exploratory analyses**

In addition to the main analyses some exploratory analyses were conducted to investigate the findings further.

**8.5.1 Attachment avoidance and the NAS subscales**

As the association between attachment avoidance and self-reported anger was found to be significant, further analyses were conducted using the sub-scales of the NAS. A general pattern of positive association was found between attachment avoidance and each of the 3 sub-scales (Cognitive, Arousal and Behavioural) which combine to give to the overall NAS total score (see Appendix XII). Only the relationship between attachment avoidance and anger arousal (NAS-ARO) reached significance ( $r = .45$ ,  $p = .004$ ). This association is shown in the scatter plot (Figure 8.4).

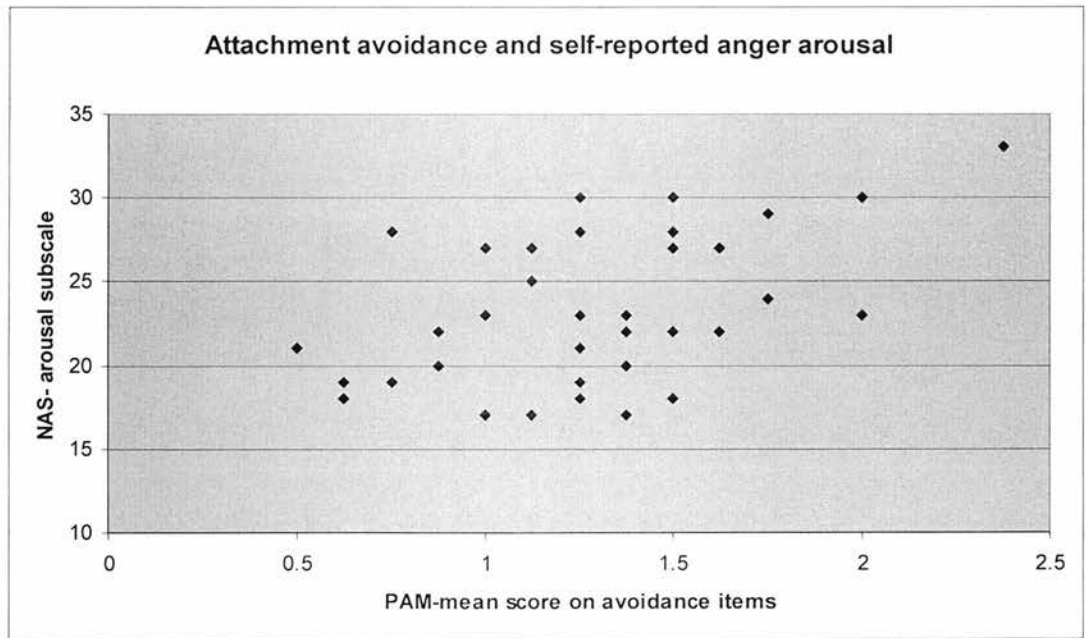


Figure 8.4: Scatter plot of the association between attachment avoidance and anger arousal.

**8.5.2 Attachment avoidance and anger-regulation**

The relationship between attachment avoidance and the additional dimension of anger regulation (NAS-REG) was also explored. A significant negative association was found between attachment avoidance and self-reported anger regulation ( $r = -.33$ ,  $p = .039$ ) (see Figure 8.5).

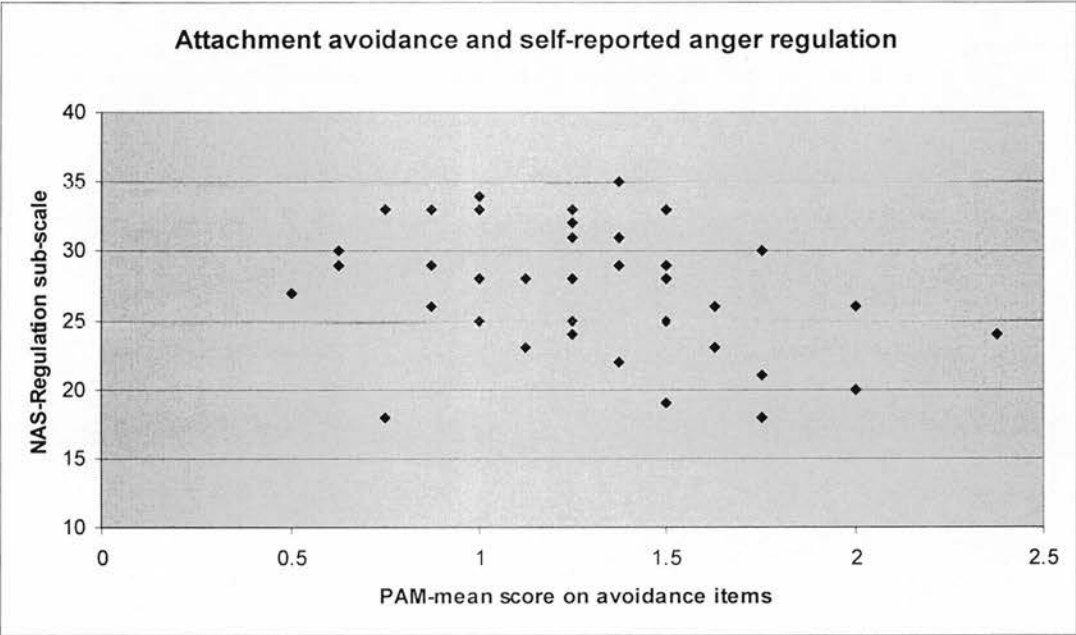


Figure 8.5: Scatter plot of the association between attachment avoidance and self-reported anger regulation.

Inspection of the scatter plot (Figure 8.5) suggests the presence of an outlier. Removal of this outlier from the analysis further strengthens the negative association between attachment avoidance and anger regulation ( $r = -.44$ ,  $p = .006$ ).

**8.5.3 Attachment avoidance and anger provocation**

Further, the association between attachment avoidance and anger provocation (NAS-PI) was explored. There was a significant association between attachment avoidance and anger provocation ( $r = .35, p = .029$ ) (see Figure 8.6).

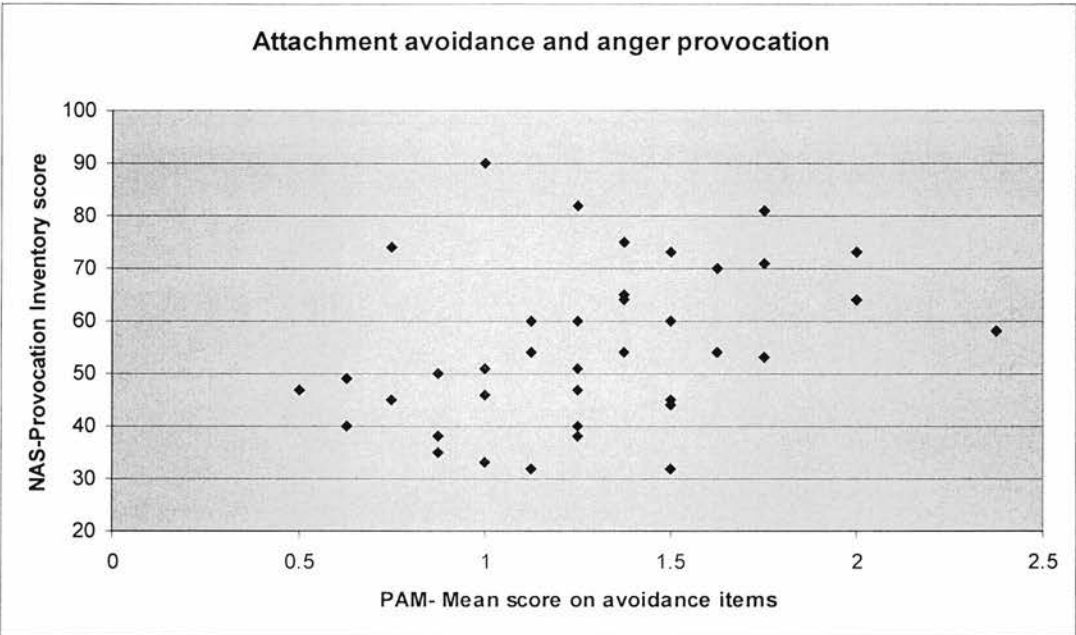


Figure 8.6: Scatter plot of the association between attachment avoidance and anger provocation.

Inspection of the scatter plot (Figure 8.6) suggests the presence of two outliers. With these removed, the strength of correlation between attachment avoidance and anger provocation is greater ( $r = .51, p = .001$ ).

#### **8.5.4 The influence of psychotic symptoms on the NAS-PI sub-scales**

As before, chi squared was used to examine the relationship between psychotic symptoms and the aforementioned NAS-PI subscales. None of the associations were significant:

##### *NAS- ARO*

2x2  $\chi^2$  analysis comparing those with and without psychotic symptoms on anger arousal (low vs. high) found no significant association ( $\chi^2 = .24$ ,  $df = 1$ ,  $p = .624$ ,  $\phi = -.08$ ).

##### *NAS- REG*

A 3x2  $\chi^2$  analysis found no association between anger regulation (low, medium & high) and psychotic symptoms ( $\chi^2 = 0$ ,  $df = 2$ ,  $p = 1$ , Cramer's  $\phi = 0$ ).

##### *NAS- PI*

A 3x2 chi square test indicated no significant relationship between anger provocation (low, medium & high) and psychotic symptoms (absent vs. present) ( $\chi^2 = .99$ ,  $df = 2$ ,  $p = .610$ , Cramer's  $\phi = .16$ ).

#### **8.5.6 Associations between self-reported anger and observer-rated anger**

A further analysis was conducted to look at the relationship between self-reported and observer-rated anger. The association was not significant ( $r = .18$ ,  $p = 0.274$ ).

### **8.5.7 Associations between self-reported anger and violence**

Finally, analyses were conducted to investigate whether self-reported anger was associated with violence. An independent t-test revealed that the mean level of self-reported anger in those with a recent history of physical violence (mean = 88.44, sd = 10.60, n = 9) was significantly higher than the group with no recent history of physical violence (mean = 69.03, sd = 9.67, n = 29) ( $t = 5.15$ ,  $df = 36$ ,  $p < .0001$ ). The equivalent point-biserial correlation is .65.

Similarly, self-reported anger was higher in those with a recent history of violence-aggression (mean = 78.67, sd = 12.43, n = 21) compared to those with no recent history (mean = 67.41, sd = 10.68, n = 17) ( $t = 2.95$ ,  $df = 36$ ,  $p = .006$ ). The equivalent point-biserial correlation is .44 suggesting the association with self-reported anger was slightly weaker for violence-aggression than that for physical violence.

## Chapter Nine: Discussion

### 9.1 Discussion of hypotheses

#### 9.1.1 Hypothesis one: Attachment avoidance will be associated with violent, aggressive behaviour in individuals with psychosis.

The predicted association between attachment avoidance and violent aggressive behaviour was not found to be statistically significant. This was the case for the two outcome measures of physical violence and violence-aggression (which included verbal aggression and attacks on objects as well as physical violence). However the association between attachment avoidance and physical violence was somewhat stronger than the association between attachment avoidance and violence-aggression. It is possible that there is a weak relationship between attachment avoidance and physical violence but the present study's sample size of 39 means that the correlation would need to be above .31 in order to be statistically significant. With a sample size of 50, the observed correlation of .29 would have been significant at the .05 level.

Previous studies have found that dismissive/ avoidant attachment is common among violent individuals (Frodi *et al.*, 2001; Levinson & Fonagy, 2004; Ward *et al.*, 1996). The present study was innovative in that it investigated associations between attachment and violence (in the past year) in a sample of individuals with psychosis. Possibly because of low power, the present study failed to find a statistically significant association between attachment avoidance and violence however this does not

necessarily contradict previous findings. It is important to bear in mind that measuring violence over the last year may not necessarily reflect historical violence. For example, the majority of individuals in the sample had a history of violence: 72% had a violent index offence and as previously noted, most were detained in either medium or high security settings (an indication that they have least been considered to pose a high risk of violence at some point). However, the recent levels of violence in the present sample were relatively low, with only 24% being physically violent over the last year. Thus most of the individuals who had a history of violence were no longer violent. Possibly this is because very serious violent offences such as murder (the modal index offence of the sample) occur at a relatively low rate. Further, there may be a very specific set of circumstances which lead an individual to commit such an offence (e.g. untreated psychosis, stress, substance misuse) and being incarcerated probably reduces such potential risk factors.

It is also important to consider the context in which the present study measured violence. For example, a likely aim for admission to secure hospital would be the reduction of the risk of violence. This may include direct or indirect treatment of violence via anti-psychotic and other types of medication and psychological therapies. It is possible that differing levels of medication or changes to medication regime could have affected the degree of violence and hostility exhibited by individuals in the sample and these were not controlled for. Staff in secure settings are also trained in the management of violence and aggression and there are usually explicit consequences for aggressive or violent



behaviour (for example loss of grounds access or leave of absence). Such contextual factors may have influenced the low rates of violence.

Furthermore, the length of stay in hospital and the presence of negative symptoms were not included as variables in the present study. This might be important in relation to rates of violence. For example, patients who have been in hospital for a long time might be closer to discharge and therefore have more to lose if they act violently. Conversely however, a long stay in hospital might reflect the fact that an individual continues to be violent or hostile and represents an ongoing risk. As regards negative symptoms such as apathy and social withdrawal, these may also reduce propensity towards aggressive and violent behaviour. It is possible that the low rates of violence in the sample could be due to a disproportionate number of individuals with negative symptoms however, one might also speculate that such individuals would be less likely to volunteer to take part in research in the first place. Nevertheless, it might be helpful to control for the influence of both length of admission and the presence of negative symptoms in any similar studies in the future.

In terms of the analyses, the low levels of violence and therefore restricted range of scores meant that violence was dichotomised as being either present or absent. This is a rather crude distinction and tells us little about the severity or frequency of the violence. Future research might seek to quantify violence in a different way, for example, perhaps by the total of violent incidents individuals have been involved in or by the number of violent convictions they have. The possibility of finding low levels of violence in the

sample was anticipated by the author when designing the study and this influenced the decision to include the anger measures, given that anger is understood to be predictive of violence.

### **9.1.2 Hypothesis two: There will be an association between attachment avoidance and self-reported anger.**

There was a significant association between attachment avoidance and self-reported anger in individuals with psychosis. This seems to be consistent with Berry, Wearden *et al.*'s (in press) finding of an association between attachment avoidance and hostility in individuals with psychosis. Although not synonymous, anger and hostility are closely related (Eckhardt *et al.*, 2004). The association between attachment avoidance and self-reported anger in the present sample does however slightly contradict Mikulincer's (1998) finding that avoidant individuals tend to under-report anger problems. In fact, avoidant attachment tends to be associated with general under-reporting of problems (Berry, Barrowclough *et al.*, in press).

The exploratory analyses looking at the three subscales of the NAS (Cognitive, Arousal, and Behavioural) found that whilst there were trends of association between attachment avoidance and each of the subscales, only the association with the anger arousal subscale was significant. This association between attachment avoidance and anger arousal is consistent with Mikulincer's (1998) findings of elevated physiological response to anger in avoidant individuals. Novaco, (2003) highlights that anger arousal may be elevated in those who are hypervigilant to threat (e.g. individuals with PTSD or

paranoia). As the overall function of the attachment system is protection, attachment theory predicts that the system is activated in situations of threat (Bowlby, 1988). MacBeth *et al.* (2008) suggested that without an internalised sense of 'safety' individuals with insecure attachment overly attend to threat. Thus, the present finding of an association between attachment avoidance and anger arousal might exist because avoidant individuals are hypervigilant to threat and thus more prone to experience anger arousal.

There was also a significant negative association between attachment avoidance and self-reported anger regulation. The Anger Regulation sub-scale of the NAS does not contribute to the NAS Total score. It provides information on the individual's ability to "regulate anger engendering thoughts and thinking styles, to effect self-calming and to engage in constructive behaviour when faced with provocation" (Novaco, 2003, p.17). Attachment theory proposes that early attachment relationships are important in the development of successful emotional regulation (Bowlby, 1969; Bartholomew, 1990). The theory posits that secure attachment facilitates the development of an internalised sense of security that enables the individual to tolerate distress and regulate it in an adaptive way (Gumley & Schwannauer, 2006). The finding of a negative association between attachment avoidance and anger regulation is consistent with this.

A further significant association was found between attachment avoidance and anger provocation. The Provocation Inventory (PI) part of the NAS-PI does not contribute to the NAS Total score. It measures anger intensity across different types of provocations.

It complements the NAS Total in that it should reflect a person's general level of anger but according to Novaco (2003), it may also overcome reluctance in the self-disclosure of anger problems as it is more situationally focussed. The significant association between attachment avoidance and anger provocation lends support to the main finding of an association between attachment avoidance and self-reported anger (NAS Total score).

The role of mentalisation may be important in understanding the present finding of an association between attachment avoidance and anger. Self-regulation is understood to be linked to mentalisation and the capacity for reflective function (Gumley & Schwannauer, 2006). As previously described, this refers to the ability to recognise one's own and others' mental states. The ability to mentalise is thought to be acquired via secure early attachment relationships (Fonagy, 2004). If avoidant individuals have impaired reflective function it may be that they find it difficult to recognise both their own anger engendering thoughts and to recognise their heightened anger arousal in response to these. Difficulty recognising the emotional state of anger presumably makes it harder to regulate.

Finally, the relationship between attachment and self-reported anger was specific to attachment avoidance as there was no association between attachment anxiety and self-reported anger. This is not entirely consistent with Mikulincer's (1998) study where individuals with an anxious/ambivalent attachment style reported higher anger-proneness and that anxious/ambivalent attachment style, rather than avoidant attachment

style, was associated with poor anger control. The differences in the findings of the two studies might be due to differences in the samples used: the present study measured attachment and anger in individuals with psychosis whereas Mikulincer's (1998) study looked at these variables in a non-clinical population. Mikulincer (1998) also measured attachment using Hazan and Shaver's (1987) self-report measure whilst the present study used the PAM. Further investigation is required to better understand the differences between anxious and avoidant attachment and its relationship to anger.

### **9.1.3 Hypothesis three: There will be an association between attachment avoidance and observer-rated anger.**

This hypothesis was not supported: there were no significant associations between attachment avoidance and observer-rated anger. The two parts of the observer-rated anger measure (WARS-A and B) were further analysed separately as they are intended to measure slightly different factors: WARS-A measures aggressive/antagonistic behaviour whilst WARS-B (anger index) focuses on affective-behavioural attributes associated with anger). Neither was found to be associated with attachment avoidance (see Appendix XI).

This finding is somewhat surprising as one might expect that if attachment avoidance is associated with self-reported anger, then it would also be associated with observer-rated anger. This was not found to be the case and in fact the two measures of anger were not correlated. This contrasts with Novaco and Taylor's (2004) finding of significant

correlation between the WARS and the NAS (although the reported correlation coefficient was not particularly large  $r = .28$ ).

The two measures differ in that WARS asks the observer to rate the individual based on their presentation over the last 7 days, whilst the NAS has no stated timescale. In collecting the data, a number of observers commented that they felt the time-scale was not perhaps reflective of the individual's general presentation. Thus the WARS measure may not be entirely representative of the generally observed anger levels of sample. It is also important to highlight that a number of individuals received very low scores on the WARS hence the distribution of the data was positively skewed. This was corrected by transforming the data however it does perhaps suggest that there were some floor effects with this measure.

## **9.2 The influence of psychotic symptoms on attachment, anger and violence**

As active psychotic symptoms are a potential confounding variable when measuring attachment in individuals with psychosis (Berry, Wearden *et al.*, in press) the present study initially planned to control for the influence of symptom severity using partial correlations. However due to the non-normal distribution of the data previously described, the influence of psychotic symptoms on each variable was instead investigated using the chi squared statistic, with psychotic symptoms dichotomised as either present or absent and the other variables similarly categorised. Most of the variables were not associated with psychotic symptoms and it is therefore unlikely that

psychotic symptoms would have had any substantial moderating effects on associations between attachment, violence and self-reported anger.

The presence of psychotic symptoms was however found to be associated with observer-rated anger. Specifically, a significantly greater proportion of individuals with low observer-rated anger reported no psychotic symptoms. This finding possibly reflects some overlap in the items included in the two measures. The observer-rated anger measure (WARS) contains items relating to suspiciousness, the expression of delusional beliefs and command hallucinations, each of which might be reflected in the responses of individuals who reported ongoing psychotic symptoms as measured by the PSYRATS. This may account for the association between the two variables.

In terms of the existing literature, the lack of an association between psychotic symptoms and attachment is somewhat surprising. Berry, Wearden *et al.* (in press) found that attachment avoidance was significantly associated with positive symptoms including paranoia. They used the Positive and Negative Syndrome Scale (PANSS; Kay *et al.*, 1987) to measure psychotic symptoms. This differs from the PSYRATS in a number of ways. For example the PANSS looks at both positive and negative symptoms whilst the PSYRATS only measures delusions and hallucinations. The PANSS also assesses global outcome whilst the PSYRATS was developed to monitor change on specific dimensions of psychotic symptoms (Haddock *et al.*, 1999). Finally, the PSYRATS does not look specifically at paranoia. The PANSS would perhaps have been a preferable measure of symptom severity in the present population but the researcher

did not have the opportunity to undertake the necessary training required to administer it.

In terms of the distribution of the PSYRATS data, the main problem was that over half of the sample (56%) denied any psychotic symptomatology. Current delusional beliefs were reported by 38% of the sample, whilst only 18% reported any ongoing experiences of hallucinations. A possible explanation for this is that the PSYRATS relies on self-report. Whether the participants' responses are an accurate reflection of symptom severity or indeed the presence of psychotic symptoms at all, is not clear from the present findings. Dozier (1990) found that avoidant attachment was associated with less self-disclosure in individuals with serious psychopathology. Potentially the avoidant individuals in the present sample would have been less likely to report any ongoing symptomatology. In turn this would reduce the likelihood of finding any significant association between attachment avoidance and psychotic symptoms.

The proportion of individuals in the sample who reported no psychotic symptomatology may also be a reflection of a sampling bias. The current mental state of potential participants was given careful consideration prior to inclusion in the study, both by the RMOs when identifying potential participants, and by the researcher in conjunction with ward staff, when deciding whether to approach an individual. Whilst this was deemed necessary in terms of ethical research practice, particularly given the vulnerability of the population, it is possible that this biased the sampling process towards selecting a less psychotic group.



### 9.3 General discussion

The present study found that in a sample of individuals with psychosis, attachment avoidance was associated with self-reported anger but associations with violence were not significant. Anger or rather, dysregulated anger is however, predictive of violence (Doyle & Dolan, 2006; Novcao, 1994). In the present study, self-reported anger and violence were strongly correlated. Whilst the study did not look at anger as a mediating factor between attachment and violence, it could be that disturbed early attachment and the subsequent development of an avoidant attachment style, leads to problematic or dysregulated anger, which in turn increases propensity for violent aggressive behaviour.

To explain this, avoidant individuals perhaps experience heightened anger arousal because they are hypervigilant to threat due to a lack of internalised sense of 'safety', as suggested by MacBeth *et al.* (2008). They are also likely to have negative internal working of models of others (Bartholomew, 1990) and so the actions and intentions of others are also more likely to be interpreted as hostile or threatening. In addition, if avoidant individuals have deficits in mentalising capacity, perhaps they find it difficult to recognise their own experience of anger, making it more difficult for them to regulate it in an adaptive way. Therefore, overestimations of threat, heightened anger arousal and difficulty regulating anger, make it more likely that avoidant individuals will respond to provocation with aggression or violence. This however this is a speculative interpretation of the findings and further investigation is required before firm conclusions can be reached.

It is also important to consider the findings in the context of the sample, i.e. individuals with psychosis. A key aim of the study was to explore the role of attachment in the relationship between psychosis and violence. Previous research indicates that the nature of this relationship is complex and likely to be mediated by a number of other factors including substance misuse (Wallace *et al.*, 1998; Walsh *et al.*, 2002) anger (Craig, 1982) and particular types of psychotic symptoms, e.g. threat/control override symptoms (Link *et al.*, 1998; McNeil *et al.*, 2000). The findings of the study, specifically the association between attachment avoidance and anger, may be useful in understanding the relationship between psychosis and violence. Firstly, if individuals with psychosis are more likely to be avoidant in their attachment style, then they may also be more likely to experience dysfunctional anger, which in turn is predictive of violence.

Secondly, in considering psychotic symptoms as a mediating factor for violence, attachment problems may also be important. The present sample reported few psychotic symptoms and paranoia was not measured specifically. Nevertheless the majority of individuals had a diagnosis of paranoid schizophrenia (62%), suggesting that they have at some point been acutely paranoid. Paranoia has been found to be associated with attachment avoidance (Berry, Wearden *et al.*, in press) and according to Gumley and Schwannauer (2006) paranoia is a 'state of mind' that develops in the context of insecure or rejecting attachment experiences and is maintained by interpersonal behaviour. They propose that deficits in mentalising ability may underpin this. MacBeth *et al.* (2008) argue that in the absence of the sense of 'safety' associated with secure attachment, individuals with insecure attachment are predisposed to attend

to threat. They suggest that paranoid thinking is a potential consequence of this and that coupled with distancing/ hostile behaviour, is likely to maintain the sense of threat.

In linking this with the present study's finding of an association between attachment avoidance and anger, one might speculate that in individuals experiencing paranoia of delusional intensity, hypervigilance to threat is further exacerbated, and associated with further increases in arousal levels (coupled with an impaired ability to regulate this). The inhibition of aggressive/ violent behaviour in response to provocation becomes increasingly difficult under these circumstances. Thus attachment avoidance and its link to anger and anger regulation may be important in understanding propensity for violence in paranoid individuals. Again this is a speculative suggestion as the present study did not find any associations between psychotic symptoms and attachment, violence or anger. This, however, may reflect the use of a self-report measure for psychotic symptoms, moreover a measure which did not look specifically at paranoia.

Finally, it is important to comment on the finding that attachment anxiety was not found to be significantly associated with any of the other variables. The attachment anxiety scores were relatively low, hence the need to transform the data which was positively skewed. Possibly this reflects a higher prevalence of individuals with avoidant attachment (rather than anxious attachment) in the sample which might be predicted on the basis that they all had a diagnosis of psychosis and the majority had a history of violence, both of which are more commonly associated with dismissive/avoidant attachment rather than anxious/ambivalent attachment.

#### 9.4 Theoretical implications

In terms of attachment theory the findings of the study offer support for its premise that the development of secure attachment is related to adaptive emotion regulation (Bowlby, 1969). The findings also lend support for the utility of attachment theory as a framework for understanding psychosis as proposed by Berry *et al.* (2007a). Emotional dysfunction and interpersonal problems have been highlighted as two key aspects of psychosis (Birchwood, 2003; Penn *et al.*, 1997), both of which are thought to predate the onset of psychosis but are also maintaining factors. The association between attachment avoidance and anger in the present study provides tentative support for a role for attachment problems in the development of emotional dysfunction in psychosis. Further, the association between attachment avoidance and anger is consistent with previous findings of hostility in the interpersonal interactions of avoidant individuals with psychosis (Berry, Wearden *et al.*, in press). This would seem to suggest that underlying attachment problems are important in the development of interpersonal problems associated with psychosis. Further, avoidance of attachment relationships is also likely to be an important maintaining factor of emotional dysfunction and interpersonal problems and therefore psychosis.

Bentall and colleagues work on paranoia and attributional style (Kaney & Bentall, 1989; Kinderman & Bentall, 1997) was briefly outlined in Chapter One and is perhaps important in relation to the current research findings. Bentall (2006) suggested that early experiences may be important in the development of the cognitive processes involved

psychotic symptoms such as paranoia. Potentially, poor early attachment and the subsequent development of an avoidant attachment style and associated negative internal working models of others, may lead to an attributional style characterised by blaming others for negative events. In turn, this may be important in understanding why individuals with psychosis, and an avoidant attachment style, have higher self-reported anger and hostility in relation to others. The role of attachment relationships in the development of attributional style, particularly in relation to psychosis and anger, is an area which may warrant further investigation.

The findings of the study may also be considered in terms of Frith's (1992, 1994) model of theory of mind deficits in schizophrenia. As outlined in Chapter One, Frith posited that paranoid beliefs may develop as a consequence of the misinterpretation of the intentions of others as malicious. It is possible that in the present study, the association between attachment avoidance and self-reported anger in individuals with psychosis is linked to a theory of mind deficit: Perhaps avoidant individuals make faulty inferences about the actions and intentions of others, and thus experience heightened anger arousal and anger-cognitions. Again, an interesting avenue for further research might be to look at deficits in theory of mind in relation to both early attachment experiences, and later attachment style in individuals with psychosis.

The present findings also have theoretical implications for conceptualising anger. Robins and Novaco (1999) highlight that in understanding anger, there is often a proximity bias so that the experience of anger is explained in terms of the event occurring immediately

prior. This mistakenly leads to the assumption that anger has a discrete cause. Instead Robins and Novaco (1999) propose a systemic model of anger which takes account of the wider context within which anger occurs. One important contextual factor identified is the interpersonal system the individual occupies. If attachment patterns are related to anger then this would seem to support a model of anger which takes account of the interpersonal context.

### **9.5 Clinical implications**

The finding of an association between attachment avoidance and self-reported anger is clinically useful information, both in terms of assessment and therapeutic intervention. In assessing individuals with clinically dysfunctional anger, it may be important to consider early attachment experiences and current attachment style as this may influence how they experience and manage anger. Given that attachment avoidance seems to be associated with anger arousal and poorer anger regulation, those delivering anger interventions for avoidant individuals ought perhaps to pay particular attention to improving recognition of physiological arousal and developing regulatory strategies.

It may also be important to consider attachment style when considering therapeutic approach for anger interventions. A pattern of attachment avoidance is likely to perpetuate anger and hostility in interpersonal interactions as it precludes the opportunity to experience disconfirmatory evidence that the intentions of others are hostile or threatening. Robins and Novaco (1999) have already indicated that the interpersonal context is important and they comment: “therapeutic focus on intrapersonal variables is

transparently inadequate when the individual remains immersed in anger-engendering contexts” (p.328). Thus anger interventions ought to take account of the interpersonal context and therefore assessing the individual’s attachment style might be useful.

In their description of a cognitive-behavioural intervention for anger problems in a special hospital (maximum security) setting, Renwick *et al.* (1997) describe some of the problems they encountered. Firstly they reported that patients were reluctant to acknowledge that they had an anger problem. Secondly, patients were suspicious and distrustful of the therapist. They comment that this is rooted in life experiences of rejection and abandonment. Thus although not explicitly stated or measured, it seems very likely that the problems encountered can be framed in terms of disturbed attachment. Renwick *et al.* (1997) also comment that the establishment of positive therapeutic relationship was essential for treatment progress. According to Gumley and Schwannauer (2006), psychological therapy provides a context in which to update internal working models via positive attachment experiences with the therapist. Thus for avoidant individuals, fostering a positive therapeutic relationship in which they have the opportunity to experience a positive attachment relationship may be particularly important in treating anger problems.

The importance of the therapeutic relationship also has clinical implications for the way in which anger treatment is delivered. Currently, a group-based approach for anger treatment is common but for individuals with avoidant attachment style, individual

treatment or group-based treatment, augmented with individual sessions, may be more effective.

The wider clinical implications for the findings are that interventions for anger problems which incorporate attachment-related difficulties may be important in reducing risk.. This may be particularly important for individuals with psychosis for whom insecure attachment is associated with a sealing-over recovery style and therefore poorer outcome and more limited service engagement (Tait et al., 2004). Thus therapeutic approaches which foster positive, trusting relationships are likely to be particularly important in future risk management for individuals with psychosis and a history of violence.

Further, if early attachment problems are important developmental precursors for risk of future violence and psychosis, the clinical implications of this are that preventative interventions should be delivered as early as possible. Thus family-based interventions such as the Solihull Approach (Solihull NHS Trust) or ‘Mellow Parenting’ groups (Puckering *et al.*, 1994), both of which are attachment focused, may be useful preventative approaches for tackling the some of the risk factors associated with future violence and with serious psychopathology.



## **9.6 Limitations**

### **9.6.1 Recruitment issues**

A limitation of the present study was that the sample size ( $n = 39$ ) was smaller than initially aimed for. Whilst the design was altered to accommodate this, it is worthwhile highlighting some of the recruitment problems encountered.

One difficulty that was anticipated was that the researcher was not able to approach individuals directly. This was a condition of the ethical approval for the study. Whilst clearly this was important in avoiding the possibility that potential participants felt obliged to participate, it did make recruitment difficult in the present sample. As previously explained, the potential participants were initially approached by either a member of nursing staff or their clinical team who provided them with a letter and an information sheet about the study. How this approach was made was not under the control of the researcher. Some staff seemed to spend time with the potential participant, discussing the information regarding the study whilst others simply handed them the letter. Where the staff member making the approach had spent time discussing the study with the individual, the response rate seemed to be much better.

Secondly the nature of the study, which was clearly described in the participant information sheet, was possibly off-putting. Anger, violence, and indeed psychotic symptoms are potentially sensitive issues in this population and this is particularly so among those detained in secure settings who may be reluctant to discuss such issues for fear that it may impede progression towards discharge. There were also at least two

occasions where the information contained in the letter/ information sheet was misinterpreted by potential participants. When the researcher was made aware of this, the information was discussed directly with the individual and concerns quickly alleviated. There may, however, have been other occasions where the information was misinterpreted and of which the researcher was unaware.

It is possible that the letter and information sheet could have been further simplified but, this must be balanced against the importance of providing sufficient information about the study in order that the individual can make an informed decision. Perhaps the use of formal letters and written information are not the most appropriate way of conveying information about research to this population, particularly due to the aforementioned high levels of literacy problems. One alternative might be to give a brief presentation about the study on the ward e.g. at ward community meetings, and then invite anyone interested to identify themselves to the researcher, following which more detailed information could be provided.

A further issue with the recruitment process was that the researcher not only had to recruit patient participants but also their keyworker. In busy ward environments, staff time is at a premium. For one ward, where 10 potential participants had been identified, they could not be approached because the ward manager felt that given the clinical demands of the ward, staff could not be spared to participate in the research. This problem was not encountered elsewhere. However, the inclusion of staff-participants,

involving as it did the organisation of separate meetings with keyworkers, considerably increased the time involved in collecting the data.

### **9.6.2 Sampling problems**

A further limitation of study might be that the sample contained a disproportionate number of individuals from the special hospital. This might be because the special hospital was the largest of the three sites. However the proportion of individuals approached who subsequently agreed to take part was greatest at this site (44% compared to only 18% in the psychiatric rehabilitation wards). Possibly this was because the researcher worked within the special hospital setting during the recruitment process and was therefore more familiar with the staff, patients and the general clinical practices at this site. This was not the case for the psychiatric rehabilitation site. Another reason could be that research is commonplace in the special hospital site (given the unusual nature of the population). Many of the patients and staff members were familiar with research participation and were therefore perhaps more receptive to taking part in the current study.

Ideally, the sample should have contained more participants from the non-forensic settings as it was predicted that this would be a less violent sample. However, violence rates were generally quite low and this probably made little difference to the distribution of violence across the sample. Nevertheless, because the sample mainly consisted of participants from forensic settings, caution should be used in generalising the findings to individuals with psychosis and no forensic history.

A further limitation of the study might be that the sample was entirely male. Female gender was not an exclusion criterion for the study. However very few female potential participants were identified (partly because the special hospital no longer admits female patients) and none agreed to take part. There are understood to be sex differences in attachment patterns (Greenberg, 1999) and therefore it would be useful to repeat the study with a mixed-gender sample.

Another potential limitation of the study is a possible sampling bias towards individuals who were less psychotic (as previously highlighted). Associated with this, the observed low levels of violence may also reflect a sampling bias in that those individuals who agreed to take part were perhaps more settled and less aggressive or violent. Such biases may be unavoidable as ultimately individuals must volunteer to take part in research studies and inevitably those who do, may differ from those who do not, in a number of ways (Lonqvist *et al.*, 2007).

### **9.6.3 Measures**

Throughout this Chapter some limitations of the measures used in the present study have been highlighted. Problems with the WARS and the PSYRATS have been discussed. If the study were to be repeated or a similar study undertaken, it might be useful to consider repeating the WARS over the course of a few weeks or using a different measure of observer-rated anger altogether. In measuring symptom severity it might be

preferable to use a measure which is not purely reliant on self-report and to measure paranoia specifically.

The measure of violence used in the present study was the risk sub-scale of the Behavioural Status Index (BSI). This was recommended by the research committee involved in approving the study at the special hospital site. The strengths of the measure were that it provided very clear definitions of violence and that it was relatively easily to administer. However the adaptations made (see Chapter Seven) mean that its psychometric properties were unknown. It also relied on retrospective accounts of the individuals' violent aggressive behaviour over the last year and ideally this should be done with careful reference to the case notes. Given the time constraints of the present study and the implications this would have for staffing resources, this was not possible. Instead the scoring was based on the rater's clinical knowledge of the individual. It is possible that some instances of violence or aggression were missed although there is no particular reason to suggest that keyworkers' ratings were inaccurate.

An alternative approach for measuring violence and aggression might be to use the Modified Overt Aggression Scale (MOAS: Sorgi *et al.*, 1991) which requires nursing staff to rate aggressive or violent behaviour over the past week and can be repeated on a weekly basis to measure violence over longer periods. However, as this was not used as standard in any of the current sites, it is probably unrealistic to expect staff to do this in addition to their normal clinical recording.

It is also important to consider the attachment measure used in the present study. The PAM is a self-report measure looking at attachment avoidance and attachment anxiety in current interpersonal relationships. Theoretically, there is an assumption that current attachment style is influenced significantly by early attachment relationships (Bowlby, 1969, 1973, 1977). However the findings cannot be used to directly infer anything about the individuals' early attachment experiences, nor their unconscious representations of attachment figures. In order to do so, one might instead use the AAI.

The rationale for using the PAM in the present study was that it is a psychometrically sound measure of attachment in individuals with psychosis. Further, given the variety of available attachment measures, the PAM was used for consistency because a number of other studies using the measure have already been published or are in press (Berry *et al.*, 2006; Berry, Barrowclough *et al.*, in press; Berry, Wearden *et al.*, in press; Wearden *et al.*, 2008). Lastly, it is acceptable to use a measure of attachment in current interpersonal relationships when measuring associations with current emotional and behavioural factors (Crowell *et al.*, 1999), as was the case in the present study.

#### **9.6.4 Confounding variables**

Finally there are some possible confounding variables, other than symptom severity, which the study did not control for. Firstly, substance misuse is thought to mediate the relationship between psychosis and violence (Wallace *et al.*, 1998; Walsh *et al.*, 2002). Both the special hospital and the medium secure unit have very strict security policies to ensure that patients do not have access to illicit substances. Patients are also regularly

screened for substance use. Thus it is unlikely that substance misuse was a significant confounding variable. Potentially, substance misuse could have confounded the data obtained from the psychiatric rehabilitation site, but because only a small proportion of the sample came from there, it seems unlikely that this would have any significant influence on the overall findings.

In addition, personality disorder (PD) has previously been linked to insecure attachment (Fonagy *et al.*, 1996; Patrick *et al.*, 1994) and antisocial personality disorder and psychopathy in particular, are associated with violence (Blumenthal & Lavender, 2000). The study did not control for personality disorder which may be an important limitation. One way of controlling for this would have been to exclude individuals with such a diagnosis from the study. This however may have reduced the sample size given that personality disorder is fairly common among the present population, particularly in the secure settings. It is also the researcher's perception that in forensic hospital settings, a diagnosis of a psychotic illness often 'trumps' any other underlying psychopathology including personality problems and therefore excluding individuals with a confirmed diagnosis of personality disorder is unlikely to mean that the remaining sample is free from personality problems. Nevertheless, it might be useful to consider controlling for personality disorder in future research.

## **9.7 Suggestions for future research**

The findings of the study suggest that attachment avoidance may be important in the experience of anger in individuals with psychosis and although significant associations

with violence were not found (possibly due to low power), it seems that both these areas warrant further research, ideally with a larger sample size. As previously suggested future research might seek to quantify violence in different ways. It might also be useful to explore the relationships between attachment, anger and violence in other samples e.g. individuals with psychosis in the community. As the mean age of the sample was 38, it might also be important to look at younger samples. This might include those in the prodromal phase or first episode of psychosis which would be interesting groups in which to investigate attachment and violence. Further, as previously noted, the present sample was entirely male so it would be useful to explore the relationship between attachment, anger and violence in female and mixed-gender samples.

The findings directly relating to anger and attachment require further investigation as although some were consistent with previous research, others findings were not and before any firm conclusions can be drawn about the relationship between attachment and anger, it is important to investigate the area further. For example, it might be useful to measure paranoia as a possible mediating factor in the relationship. Further, as the present study's design was correlational, the direction of the association between attachment and anger cannot be confirmed. The relationship may in fact be bi-directional. Future research might seek to establish the direction of the relationship, perhaps by comparing a 'high anger' group with a 'low anger' group in terms of their attachment style.



The clinical implications of the relationship between attachment and anger have been discussed. Future research might explore whether anger interventions which take account of individual differences in attachment style, improve treatment outcome. For example, comparing the effectiveness of anger interventions for avoidant individuals, which include individual therapy (within which internal working models might be updated), with purely group-based interventions.

## **9.8 Conclusions**

The present study aimed to investigate relationships between attachment and anger and attachment and violence, in individuals with psychosis. This was in light of existing research suggesting that dismissive/avoidant attachment is associated with psychosis and also with anger problems and violent offending.

The results indicate that there is an association between attachment avoidance and self-reported anger (but not observer-rated anger) in individuals with psychosis. Exploratory analyses revealed that attachment avoidance was associated specifically with anger arousal and with poorer anger regulation. Associations between attachment and violence were not found to be significant although possibly with a larger sample size, the association would have been significant.

Some caveats to these results are that the sample consisted mainly of forensic inpatients or ‘mentally disordered offenders’ therefore the findings cannot necessarily be generalised to a non-forensic psychosis population. Further the study’s correlational

design also means that the direction of the association between attachment avoidance and anger is not known. Lastly, the attachment measure used was a self-report measure of attachment in current interpersonal relationships. It cannot be used to directly infer anything about early attachment relationships, although the theory would predict that these are likely to significantly influence current attachment styles.

Some clinical implications of the findings include that approaches to anger treatment should be sensitive to attachment-related difficulties, particularly in individuals with psychosis. The wider implications for this are perhaps that therapeutic interventions which address attachment-related problems may reduce risk of future violence in this population. Further research is however required before any firm conclusions can be reached about the role of attachment in violence in individuals with psychosis.

## References

Ainsworth, M.D.S. (1991). Attachments and other affectional bonds across the life cycle. In C.M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachments across the life cycle* (pp. 33-51). London: Routledge.

Ainsworth, M.D.S., Blehar, M.C., Waters, E., and Wall, S. (1978). *Patterns of Attachment: Psychological Study of the Strange Situation*. Hillsdale, NJ: Lawrence Erlbaum.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> ed)*. Washington DC: American Psychiatric Association.

Appelbaum, P.S., Clark, Robbin, P.C., & Monahan, J. (2000). Violence and delusions: Data from the McArthur violence risk assessment study. *American Journal of Psychiatry*, 157(4), 566-572.

Arseneault, L., Moffit, T., Caspi, A., Taylor, P., & Silva, P. (2000). Mental disorders and violence in a total birth cohort. *Archives of General Psychiatry*, 57, 979-986.

Bakermans-Kranenburg, M., & van Ijzendoorn, M. (1993). A psychometric study of the Adult Attachment Interview: reliability and discriminant validity. *Developmental Psychology*, 29, 870-879.

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal relationships*, 7, 147-178.

Bartholomew, K & Horowitz, L.M. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology*, 61 (2), 226-244.

Beck, A. (1976). *Cognitive Therapy and the Emotional Disorders*. New York: International Universities Press.

Bentall, R.P. (1994). Cognitive biases and abnormal beliefs: Towards a model of persecutory delusions. In A.S. David & J.C. Cutting (Eds.) *The Neuropsychology of Schizophrenia* (pp.337-360). London: Lawrence Elbraum.

Bentall, R. P. (2003). *Madness explained: Psychosis and Human Nature*. London: Penguin.

Bentall, R.P. (2004). Abandoning the concept of schizophrenia: The cognitive psychology of hallucinations and delusions. In J. Read, L.R. Mosher & R.P. Bentall (Eds.) *Models of Madness: Psychological, Social and Biological Approaches to Schizophrenia* (pp 195-208). East Sussex: Brunner-Routledge.

Bentall, R. (2006). Madness explained: Why we must reject the Kraepelinian paradigm and replace it with a 'complaint-oriented' approach to understanding mental illness. *Medical Hypotheses*, 66, 220-233.

Bentall, R.P., Corcoran, R., Howard, R., Blackwood, N. & Kinderman, P. (2001). Persecutory delusions: A review and theoretical integration. *Clinical Psychology Review*, 21, 1145-1192.

Berry, K., Barrowclough, C., Wearden, A. (2007a). A review of the role of adult attachment style in psychosis: Unexplored issues and questions for further research. *Clinical Psychology Review*, 27, 458-475.

Berry, K., Barrowclough, C., & Wearden, A. (in press). Adult attachment, perceived earlier experience of care-giving and trauma in people with psychosis. *Journal of Mental Health*.

Berry, K., Wearden, A. & Barrowclough, C. (2007b). Adult attachment styles and psychosis: An investigation of associations between general attachment styles and attachment relationships with specific others. *Social Psychiatry and Psychiatric Epidemiology*, 42, 972-976.

Berry, K., Wearden, A. & Barrowclough, C. (in press). Adult attachment theory: A framework for understanding symptom profiles, interpersonal problems and therapeutic relationships in psychosis. *Behaviour, Research and Therapy*.

Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. *Personality and Individual Differences*, 41, 707-718.

Birchwood, M. (2003). Pathways to emotional dysfunction in first episode psychosis. *British Journal of Psychiatry*, 182, 373-375.

Birchwood, M. & Jackson, C. (2001). *Schizophrenia*. East Sussex: Psychology Press Ltd.

Blumenthal, S., & Lavender, T. (2000). *Violence and Mental Disorder: A Critical Aim to the Assessment and Management of Risk*. London: Jessica Kingsley Publishers.

Bowlby, J. (1969). *Attachment and Loss: Vol I. Attachment*. London: The Hogarth Press.

Bowlby, J. (1973). *Attachment and Loss: Vol II. Separation, Anxiety and Anger*. London: The Hogarth Press.

Bowlby, J. (1980). *Attachment and Loss: Vol III. Loss, Sadness and Depression*. London: The Hogarth Press.

Bowlby, J. (1977). The making and breaking of affectional bonds: I. Aetiology and Psychopathology in the light of attachment theory. *British Journal of Psychiatry*, 130, 201-210.

Bowlby, J. (1988). *A Secure Base: Clinical Applications of Attachment Theory*. London: Routledge.

Boyle, M. (1990). *Schizophrenia: A Scientific Delusion?* London: Routledge.

Bretherton, I. & Munholland, K.A. (1999). Internal working models in attachment relationships: A construct revisited. In J. Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications* (pp.89-111). New York: The Guildford Press.

Brown, W.A. & Herz, L.R. (1989). Response to neuroleptic drugs as a device for classifying schizophrenia. *Schizophrenia Bulletin*, 15, 123-128.

Cannon, M., Walsh, E., Hollis, C., Kargin, M., Taylor, E., Murray, R.M., & Jones, P.B. (2001). Predictors of later schizophrenia and affective psychosis among attendees at a child psychiatry department. *British Journal of Psychiatry*, 178, 420-426.

Cassidy, J. (1999). The nature of the child's ties. In J.Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications* (pp.3-20). New York: The Guildford Press.

Cassidy, J. & Berlin, L.J. (1994). The insecure/ambivalent pattern of attachment: Theory and research. *Child Development*, 65, 971-991.

Clark-Carter, D. (1997). *Doing Quantitative Psychological Research: From Design to Report*. East Sussex: Psychology Press Ltd.

Collins, N.L. & Feeney, B.C. (2000). A safe-haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality & Social Psychology*, 78(6), 1053-1073.

Collins, N. & Read, S. (1990). Adult attachment relationships, working models and relationship quality in dating couples. *Journal of Personality and Social Psychology*, 58, 644-683.

Cooper, M.L., Shaver, P. R., Collins, N.L. (1998). Attachment styles, emotion regulation and adjustment in adolescence. *Journal of Personality and Social Psychology*, 74 (5), 1380-1397.



Craig, T.J. (1982). An epidemiological study of problems associated with violence among psychiatric patients. *American Journal of Psychiatry*, 38, 414-418.

Crichton, J. (1999). Mental disorder and crime: Coincidence, correlation and cause. *The Journal of Forensic Psychiatry*, 10(3), 659-677.

Crittenden, P. (1985). Maltreated infants: vulnerability and resilience. *Journal of Child Psychology and Psychiatry*, 16, 315-320.

Crowell, J.A., Fraley, R.C., & Shaver, P.R. (1999). Measurement of individual differences in adolescent and adult attachment. In J.Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications* (pp.434-465). New York: The Guildford Press.

Crowell, J.A. & Treboux, D. (1995). A review of adult attachment measures: Implications for theory and research. *Social Development*, 4 (3), 294-327.

Davis, S. (1991). Violence by psychiatric inpatients: a review. *Hospital and Community Psychiatry*, 42, 585-590.

Diamond, D, & Doane, J.A. (1994). Disturbed attachment and negative affective style: An intergenerational spiral. *British Journal of Psychiatry*, 164, 770-781.

Doane, J.A., West., K.L., Goldstein, M.J., Rodnick, E.H. & Jones, J.E. (1981) Parental communication deviance and affective style: Predictors of subsequent schizophrenia spectrum disorders in vulnerable adolescents. *Archives of General Psychiatry*, 38(6), 679-685.

Done, D.J., Johnstone, E.C., Frith, C.D., Golding, J., Shepherd, P.M., & Crow, T.J. (1991). Complications of pregnancy and delivery in relation to psychosis in adult life: Data from the British perinatal mortality survey sample. *British Medical Journal*, 302, 1576-1580.

Doyle, M. & Dolan, M. (2006). Evaluating the validity of anger regulation problems, interpersonal style, and disturbed mental state for predicting inpatient violence. *Behavioural Sciences and the Law*, 24, 783-798.

Dozier, M. (1990). Attachment organization and treatment use for adults with serious psychopathological disorders. *Development and Psychopathology*, 2(1), 47-60.

Dozier, M, Chase Stovall, K. & Albus, K.E. (1999). Attachment and psychopathology in adulthood. In J.Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications*. (pp.497-519). New York: The Guildford Press.

Drake, R., Haddock, G., Tarrier, N., Bentall, R., & Shon, L. (2007). The psychotic symptom rating scales (PSYRATS): Their usefulness and properties in first episode psychosis. *Schizophrenia Research*, 89, 119-122.

Drayton, M., Birchwood, M., Trower, P. (1998). Early attachment experience and recovery from psychosis. *British Journal of Clinical Psychology*, 37, 269-284.

Early, T., Haller, J.W., Posner, M.I. & Raichle, M. (1994). The left striato-pallidal hyperactivity model of schizophrenia. In A.S. David & J.C. Cutting (Eds.) *The Neuropsychology of Schizophrenia* (pp.15-38). London: Lawrence Elbraum.

Eckhardt, C., Norlander, B., Deffenbacher, J. (2004). The assessment of anger and hostility: A critical review. *Aggression and Violent Behaviour*, 9, 17-43.

Enns, M.W., Cox, B.J. & Clara, I. (2002). Parental bonding and adult psychopathology: results from the US National Comorbidity Survey. *Psychological Medicine*, 32 (6), 997-1008.

Fonagy, P. (2004). The developmental roots of violence in the failure of menatlization. In F. Pfafflin & G. Adshead (Eds) *A Matter of Security: The Application of Attachment Theory to Forensic Psychiatry and Psychotherapy* (pp.13-56). London: Jessica Kingsley Publishers.

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., et al. (1996). The relation of attachment status, psychiatric classification and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, 64, 22-31.

Fottrell, E. (1980). A study of violent behaviour among patients in psychiatric hospitals. *British Journal of Psychiatry*, 136, 216-221.

Freeman, D. & Garety, P.A. (2004). *Paranoia: The Psychology of Persecutory Delusions*. Hove, East Sussex: Psychology Press.

Frith, C.D. (1992). *The Cognitive Neuropsychology of Schizophrenia*. Hove, Lawrence Elbaum Associates.

Frith, C. (1994). Theory of mind in schizophrenia. In A.S. David & J.C. Cutting (Eds.) *The Neuropsychology of Schizophrenia* (pp.147-162). London: Lawrence Elbaum.

Frith, C.D., & Corcorran, R. (1996). Exploring 'Theory of Mind' in people with schizophrenia. *Psychological Medicine*, 26(3), 521-530.

Frodi, A. Dernevik, M., Sepa, A. Phillipson, J. & Bragesjo, M. (2001). Current attachment representations of incarcerated offenders varying in degree of psychopathy. *Attachment & Development*, 3(3), 269-283.

Garety, P.A., Kuipers, E., Fowler, D., Freeman, D., & Bebbington, P.E. (2001). A cognitive model of the positive symptoms of psychosis. *Psychological Medicine*, 31(2), 189-195.

George, C., Kaplan, N., & Main, M. (1984). *Adult Attachment Interview Protocol*. Unpublished manuscript, University of California at Berkeley.

George, C., Kaplan, N., & Main, M. (1985). *Adult Attachment Interview Protocol*. Unpublished manuscript (2<sup>nd</sup> ed.). University of California at Berkeley.

George, C., Kaplan, N., & Main, M. (1996). *Adult Attachment Interview Protocol*. Unpublished manuscript (3<sup>rd</sup> ed.). University of California at Berkeley.

Goldstein, M.J. (1987). The UCLA High Risk Project. *Schizophrenia Bulletin*, 13(3), 505-514.

Greenberg, M.T. (1999). Attachment and psychopathology in childhood. In J.Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications*. (pp.469-496). New York: The Guildford Press.

Griffin, D. & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology*, 67(3), 430-445.

Gumley, A. & Schwannauer, M. (2006). *Staying Well after Psychosis: A Cognitive Interpersonal Approach to Recovery and Relapse Prevention*. West Sussex: John Wiley & Sons Ltd.

Haddock, G., McCarron, J., Tarrier, N., & Faragher, E.B. (1999). Scales to measure dimensions of hallucinations and delusions: the psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, 29 (4), 879-889.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511-524.

Hesse, E. (1996). Discourse, memory, and the Adult Attachment Interview: A note with emphasis on the emerging cannot classify category. *Infant Mental Health Journal*, 17, 4-11.

Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J.Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications*. (pp.395-433). New York: The Guildford Press.

Hiday, V.A. (1995). The social context of mental illness and violence. *Journal of Health and Social Behaviour*, 36 (2), 122-137.

Jernigan, T.L. Zisook, S., Heaton, R.K., Moranville, J.T., Hesseling, J.R., & Braff, D.L. (1991). Magnetic resonance imaging abnormalities in lenticular nuclei and cerebral cortex in schizophrenia. *Archives of General Psychiatry*, 48, 881-890.

Johnstone, E.C., Crow, T.J., Frith, C.D., Carney, M.W., & Price, J.S. (1978). Mechanism of the antipsychotic effect in the treatment of acute schizophrenia. *Lancet*, 848-851.

Jolley, S., Garety, P., Bebbington, P., Dunn, G., Freeman, D., Kuipers, E. *et al.* (2006). Attributional style in psychosis: The role of affect and belief type. *Behaviour Research and Therapy*, 44(11), 1597-1607.

Jones, P., Rodgers, B., Murray, R., & Marmot, M. (1994). Child developmental risk factors for adult schizophrenia in the British 1946 birth cohort. *Lancet*, 344, 1398-1402.

Joseph, J. (2004). Schizophrenia and heredity: Why the emperor has no genes. In J. Read, L.R. Mosher & R.P. Bentall (Eds.) *Models of Madness: Psychological, Social and Biological Approaches to Schizophrenia* (pp 67-83). East Sussex: Brunner-Routledge.

Junginger, J. (1996). Psychosis and violence: The case for a content analysis of psychotic experience. *Schizophrenia Bulletin*, 22 (1), 91-103.

Junginger, J. & McGuire, L. (2004). Psychotic motivation and the paradox of current research on serious mental illness and rates of violence. *Schizophrenia Bulletin*, 30 (1), 21-30.

Kaney, S. & Bentall, R.P. (1989). Persecutory delusions and attributional style. *British Journal of Medical Psychology*, 62(2), 191-198.

Kavanagh, D. (1992). Recent developments in EE and schizophrenia. *British Journal of Psychiatry*, 160, 601-620.

Kay, S.R., Fiszbein, A. & Opler, L.A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, 13, 261-276.

Kinderman, P. & Bentall, R.P. (1997). Causal attributions in paranoia and depression: Internal, personal, and situational attributions for negative events. *Journal of Abnormal Psychology*, 106(2), 341-345.

Kingdon, D.G. & Turkington, D. (1994). *Cognitive-Behavioral Therapy of Schizophrenia*. Hove, East Sussex: Lawrence Erlbaum Associates Ltd.

Kobak, R.R. & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development*, 59, 135-146.

Krug, E.G. (2002). *World Report on Violence and Health*. Geneva: World Health Organization.



Kurdek, L.A. (2002). On being secure about the assessment of attachment styles. *Journal of Social and Personal Relationships*, 19, 811-834.

Lansford, J. E., Miller-Johnson, S., Berlin, L.J., Dodge, K.A., Bates, J.E., Pettit, G.S. (2007). Early physical abuse and later violent delinquency: A prospective longitudinal study. *Child Maltreatment*, 12(3), 233-245.

Leff, J., Kuipers, L., Berkowitz, R., Eberlein-Vries, R., & Sturgeon, D. (1982). A controlled trial of social intervention in the families of schizophrenic patients. *The British Journal of Psychiatry*, 141, 121-134.

Levinson, A. & Fonagy, P. (2004). Offending and attachment: the relationship between interpersonal awareness and offending in a prison population with psychiatric disorder. *Canadian Journal of Psychoanalysis*, 12 (2), 225-251.

Link, B., Stueve, H. (1994). Psychotic symptoms and the violent/ illegal behaviour of mental patients compared to community controls. In J. Monahan & H. Steadman (Eds.) *Violence and mental disorder*. (pp. 137-160). Chicago: University of Chicago Press.

Link, B.G., Stueve, A., & Phelan, J. (1998). Psychotic symptoms and violent behaviours: probing the components of “threat/control-override” symptoms. *Social Psychiatry and Psychiatric Epidemiology*, 33, S55-S60.

Lonqvist, J., Paunonen, S., Verkasalo, M., Leikas, S., Tuulio-Henriksson, A. & Lonqvist, J. (2007). Personality characteristics of research volunteers. *European Journal of Personality*, 21 (8), 1017-1030.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security of infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Walters (Eds.), *Growing Points of Attachment Theory and Research* (pp.66-106), Chicago: University of Chicago Press.

MacBeth, A., Schwannauer, M., & Gumley, A. (2008). The association between attachment style, social mentalities, and paranoid ideation: An analogue study. *Psychology and Psychotherapy: Theory, Research and Practice*, 81, 79-93.

McGlashan, T.H. (1987). Recovery style from mental illness and long-term outcome. *Journal of Nervous and Mental Disease*, 175, 681-685.

McGrath, J. J. (2006). Variations in the incidence of schizophrenia: Data versus Dogma. *Schizophrenia Bulletin*, 32(1), 195-197.

McNeil, D., Eisner, J.P., Binder, R.L. (2000). The relationship between command hallucinations and violence. *Psychiatric Services*. 51 (10), 1288-1292.

Mickelson, K.D., Kessler, R.C. & Shaver, P.R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology*, 73 (5), 1092-1106.

Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology*, 74 (2), 513-524.

Mirowsky, J. & Ross, C.E. (1983). Paranoia and the structure of powerlessness. *American Sociological Review*, 48, 228-239.

Monahan, J. (1992). Mental disorder and violent behaviour: Perceptions and evidence. *American Psychologist*, 47, 511-521.

Monahan, J., Steadman, H., Silver, E., Appelbaum, P., Robbins, P., Mulvey, E. *et al.* (2001). *Rethinking Risk Assessment: The McArthur Study of Mental Disorder and Violence*. New York: Oxford University Press.

Morrison, A. (2001). The interpretation of intrusions in psychosis: An integrative cognitive approach to hallucinations and delusions. *Behavioural and Cognitive Psychotherapy*, 29, 257-276.

NHS: National Patient Safety Agency. (2007). *Information Sheets and Consent forms: Guidance for researchers and reviewers* (Version 3.2). <http://www.nres.npsa.nhs.uk>.

Nijman, H., Bjorkly, S., Palmstierna, T., & Almvik, R. (2006). Assessing aggression of psychiatric inpatients: Methods of measurement and its prevalence. In D. Richter & R. Whittington (Eds.) *Violence in Mental Health Settings: Causes, Consequences and Management*. (pp.11-21). New York: Springer.

Norman, R. M. G., Malla, A. K., Cortese, L., Diaz, F. (1998). Aspects of dysphoria and symptoms of schizophrenia. *Psychological Medicine*, 28(6), 1433-1441.

Novaco, R.W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan & H.J. Steadman (Eds.) *Violence in Mental Disorder*. (pp.21-59). Chicago: University of Chicago Press.

Novaco, R.W. (2003). *The Novaco Anger Scale and Provocation Inventory (NAS-PI)*. Los Angeles: Western Psychological Services.

Novaco, R.W. & Renwick, S.J. (1998). Anger predictions of the assaultiveness of forensic hospital patients. In E. Sanavio (Ed.). *Behaviour and Cognitive Therapy Today: Essays in Honour of Hans J. Eysenck* (pp. 199-208). Oxford: Pergamon.

Novaco, R.W. & Taylor, J.L. (2004). Assessment of anger and aggression in male offenders with developmental disabilities. *Psychological Assessment*, 16(1), 42-50.

Nuechterlein, K.H., Buchsbaum, M.S., & Dawson, M.E. (1994). Neuropsychological vulnerability to schizophrenia. In A.S. David & J.C. Cutting (Eds.) *The Neuropsychology of Schizophrenia* (pp.53-77). London: Lawrence Elbraum.

O'Carroll, R. (2000). Cognitive impairment in schizophrenia. *Advances in Psychiatric Treatment*, 6, 161-168.

Onstad, S., Skre, I., Torgersen, S. & Kringlen, E. (1991). Twin concordance for DSM-III-R schizophrenia. *Acta Psychiatrica Scandinavica*, 83, 395-402.

Patrick, M., Hobson, R.P., Castle, D., Howard, R., & Maughan, B. (1994). Personality disorder and the mental representation of early social experience. *Development and Psychopathology*, 6, 359-388.

Penn, D.L., Corrigan, P.W., Bentall, R.P., Racenstein, J.M. & Newman, L. (1997). Social Cognition in Schizophrenia. *Psychological Bulletin*, 121(1), 114-132.

Ponizovksy, A.M., Nechamin, Y. & Rosca, P. (2007). Attachment patterns are associated with symptomatology and course of schizophrenia in male inpatients. *American Journal of Orthopsychiatry*, 77 (2), 324-331.

Puckering, C., Rogers, J., Mills, M., Cox, A.D. & Mattsson-Graf, M. (1994). Process and evaluation of a group intervention for mothers with parenting difficulties. *Child Abuse Review*, 3, 299-310.

Putkonen, H., Collander, J., Honkasalo, M.L., & Lonnqvist, J. (1998). Finnish female homicide offenders 1982-92. *Journal of Forensic Psychiatry*, 9, 672-684.

Raine, A., Brennan, P., & Mednick, S.A. (1994). Birth complications combined with early maternal rejection at age 1 year predispose to violent crime at age 18 years. *Archives of General Psychiatry*, 51, 984-988.

Raine, A., Brennan, P., & Mednick, S.A. (1997). Interaction between birth complications and early maternal rejection in predisposing individuals to adult violence: Specificity to serious, early onset violence. *American Journal of Psychiatry*, 154, 1265-1271.

Rankin, P. Bentall, R., Hill, J., & Kinderman, P. (2005). Perceived relationships with parents and paranoid delusions: Comparisons of currently ill, remitted and normal participants. *Psychopathology*, 38(1) 16-25.

Read, J., Seymour, F., Mosher, L.R. (2004). Unhappy families. In J. Read, L.R. Mosher & R.P. Bentall (Eds.) *Models of Madness: Psychological, Social and Biological Approaches to Schizophrenia* (pp 253-268). East Sussex: Brunner-Routledge.

Reed, V., Woods, P., et al. (2000). *The Behavioural Status Index (BSI): A life skills assessment for selecting and monitoring therapy in mental health care*. UK: Psychometric Press.

Renwick, S.J., Black, L., Ramm, M., Novaco, R.W. (1997). Anger treatment with forensic hospital patients. *Legal and Criminological Psychology*, 2, 103-116.

Robins, S. & Novaco, R.W. (1999). Systems conceptualization and the treatment of anger. *Journal of Clinical Psychology*, 55 (3), 325-337.

Rosenstein, D.S. & Horowitz, H.A. (1996). Adolescent attachment and psychopathology. *Journal of Consulting and Clinical Psychology*, 64(2), 244-253.

Rudnick, A. (1999). Relation between command hallucinations and dangerous behaviour. *Journal of American Academy of Psychiatry and the Law*, 27, 253-257.

Shepherd, M. & Lavender, T. (1999). Putting aggression in context: An investigation into contextual factors influencing the rate of aggressive incidents in psychiatric hospital. *Journal of Mental Health*, 8, 151-162.

Sheridan, M., Henrion, R., Robinson, L., & Baxter, V. (1990). Precipitants of violence in a psychiatric inpatient setting. *Hospital and Community Psychiatry*, 41, 776-780.

Simpson, J.A. (1990). The influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, 59, 971-980.

Singleton, N., Meltzer, H., Gatward, R., Coid, J., & Deasy, D. (1998). *Psychiatric Morbidity Among Prisoners*. London: HMSO.

Smallbone, S.W. & Dadds, M.R. (2001). Further evidence for a relationship between attachment insecurity and coercive sexual behaviour in non-offenders. *Journal of Interpersonal Violence*, 16(1), 22-35.

Solomon and George (1999). The measurement of attachment security in infancy and childhood. In J. Cassidy & P.R. Shaver (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications*. (pp.287-318). New York: The Guildford Press.

Sorgi, P., Ratey, J., Knoedler, D.W., Markert, R.J., & Reichman, M. (1991). Rating aggression in the clinical settings: A retrospective adaption of the Overt Aggression Scale: Preliminary results. *Journal of Neuropsychiatry and Clinical Neuro-sciences*. 3(2), S52-S56.

Spielberger, C., Jacobs, G., Russell, S., & Crane, R.S. (1983). Assessment of anger: The State-Trait Anger Scale. In J.N. Butcher & C.D. Spielberger (Eds.). *Advances in Personality Assessment (Vol. 2)*. Hillsdale, N.J: Erlbaum.



Sroufe, L.A. (1983). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M Perlmutter (Ed.) *Minnesota symposium in child psychology*, Vol 16. Hillsdale, NJ: Erlbaum.

Steadman, H.J., Mulvey, E.P., Monahan, J., Robbins, P.C., Appelbaum, P.S., Grisso, T. *et al.* (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighbourhoods. *Archives of General Psychiatry*, 55, 1-9.

Stueve, A. & Link, B.G. (1997). Violence and psychiatric disorders: Results from an epidemiological study of young adults in Israel. *Psychiatric Quarterly*, 68, 39-55.

Swanson, J.W., Holzer, C.E. 3<sup>rd</sup>., Ganju, V.K., & Jono, R.T. (1990). Violence and psychiatric disorder in the community: Evidence from the epidemiologic catchment area surveys. *Hospital and Community Psychiatry*, 41, 761-770.

Tabachnick, B.G. & Fidell, L.S. (1996). *Using Multivariate Statistics*. New York: Harper Collins.

Tait, L., Birchwood, M., Trower, P. (2004). Adapting to the challenge of psychosis: personal resilience and the use of sealing-over (avoidant) coping strategies. *British Journal of Psychiatry*, 185, 410-415.

Taylor, J.L., DuQueno, L., Novaco, R.W. (2004). Piloting a ward anger rating scale for older adults with mental health problems. *Behavioural and Cognitive Psychotherapy*, 32, 467-479.

Taylor, P.J., Leese, M., Williams, D., Butwell, M., Daly, R. & Larkin, E. (1998). Mental disorder and violence: A special (high security) hospital study. *British Journal of Psychiatry*, 172, 218-226.

Torrey, E.F. (1987). Prevalence studies in schizophrenia. *British Journal of Psychiatry*, 150, 598-608.

Troy, M. & Sroufe, L.A. (1987). Victimization among preschoolers: role of attachment relationships history. *Journal of American Academy of Child and Adolescent Psychiatry*, 26, 166-172.

Van Ijzendoorn, M.H., Feldbrugge, J., Derks, F.C.H., De Ruiter, C., Verhagen, M.F.M. Philipse, M.W.G. *et al.* (1997). Attachment representations of personality-disordered criminal offenders. *American Journal of Orthopsychiatry*, 67, 449-459.

Walker, E.F. (1994). Neurodevelopmental precursors of schizophrenia. In A.S. David & J.C. Cutting (Eds.) *The Neuropsychology of Schizophrenia* (119-129). London: Lawrence Elbraum.

Wallace, C., Mullen, P., Burgess, P., Palmer, S., Rushena, D., & Browne, C. (1998). Serious criminal offending and mental disorder. *British Journal of Psychiatry*, 172, 477-484.

Walsh, E., Buchanan, A., Fahy, T. (2002). Violence and schizophrenia: examining the evidence. *British Journal of Psychiatry*, 180, 490-495.

Ward, M.J., Lee, S.S., Polan, H.J. (2006). Attachment and psychopathology in a community sample. *Attachment and Human Development*, 8 (4), 327-340.

Ward, T., Hudson, S.H. & Marshall, W.L. (1996). Attachment style in offenders: A preliminary study. *Journal of Sex Research*, 33(1), 17-26.

Wearden, A., Peters, I., Berry, K., Barrowclough, C., & Liversidge, T. (2008). Adult attachment, parenting experiences, and core beliefs about self and others. *Personality and Individual Differences*, 44 (5), 1246-1257.

Weinfield, N.S., Sroufe, L.A., Egeland, B., Carlson, E.A. (1999). The nature of individual differences in infant-caregiver attachment. In J.Cassidy & P.R. Shaver (Eds.)

*Handbook of Attachment: Theory, Research and Clinical Applications.* (pp.68-88). New York: The Guildford Press.

Wessley, S.C., Castle, D., & Douglas, A.J. (1994). The criminal careers of incident cases of schizophrenia. *Psychological Medicine*, 24, 483-503.

Whittington, R. & Richter, D. (2006). From the individual to the interpersonal: Environment and interaction in the escalation of violence in mental health. In R. Whittington & D. Richter (Eds.) (pp.47-65). *Violence in Mental Health Settings: Causes, Consequences and Management*. New York: Springer.

Widom, C.S. (1989). The cycle of violence. *Science*, 244, 160-166.

Woods, P., Reed, V., Collins, M. (2004). Relationships among risk, communication and social skills in a high security forensic setting. *Issues in Mental Health Nursing*, 25, 769-782.

World Health Organisation (1992). *The ICD-10 Classification of mental and behavioural disorders: Clinical descriptors and diagnosis guidelines*. Geneva: WHO.

Zubin J. & Spring B. (1977) Vulnerability - A new view of schizophrenia. *Journal of Abnormal Psychology*, 86(2), 103-124.



## **Appendix I**

Letter of Ethical approval

05 February 2008

Miss Fiona E Mair  
 Trainee Clinical Psychologist  
 The Orchard Clinic  
 Royal Edinburgh Hospital  
 Tipperlinn Road  
 Edinburgh EH10 5HF

Dear Miss Mair

**Full title of study:** Attachment style and violence in individuals with psychosis  
**REC reference number:** 07/S1103/61

Thank you for your letter of 24 January 2008, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered on behalf of the Committee by the Chair, Dr Christine West.

#### Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

#### Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

#### Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

#### Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application	AB/129342/1	21 January 2008
Investigator CV	for Fiona Mair	18 December 2007
Investigator CV	for Professor David F Peck	18 December 2007
Protocol	2	21 January 2008
Covering Letter	1 - with 19/12/07 submission	18 December 2007
Covering Letter	2 - with changes	21 January 2008
Letter from Sponsor		03 December 2007
Compensation Arrangements	AON Commercial Insurance	20 July 2007
Questionnaire: 5 validated questionnaires	1	18 December 2007
Letter of invitation to participant	1	18 December 2007
GP/Consultant Information Sheets	2 - Letter to consultant/RMO	21 January 2008
Participant Information Sheet	2	21 January 2008
Participant Consent Form	2 - for participant's key-worker	21 January 2008
Participant Consent Form	2 - for participant	21 January 2008
Confirmation of doctoral student status		20 November 2007

**R&D approval**

All researchers and research collaborators who will be participating in the research at NHS sites should apply for R&D approval from the relevant care organisation, if they have not yet done so. R&D approval is required, whether or not the study is exempt from SSA. You should advise researchers and local collaborators accordingly.

Guidance on applying for R&D approval is available from <http://www.rdforum.nhs.uk/rdform.htm>.

**Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**After ethical review**

Now that you have completed the application process please visit the National Research Ethics Website > After Review

Here you will find links to the following

- a) Providing feedback. You are invited to give your view of the service that you have received from the National Research Ethics Service on the application procedure. If you wish to make your views known please use the feedback form available on the website.
- b) Progress Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
- c) Safety Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
- d) Amendments. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
- e) End of Study/Project. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email [referencegroup@nationalres.org.uk](mailto:referencegroup@nationalres.org.uk).

REC Reference Number	07/S1103/6	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project

Yours sincerely

pp Chair  
**Lothian Local Research Ethics Committee 03**  
 Email: [elizabeth.harden@lhb.scot.nhs.uk](mailto:elizabeth.harden@lhb.scot.nhs.uk)

Enclosures: Standard approval conditions: Site approval form  
 Copy to: R&D office for NHS Lothian



**Lothian Local Research Ethics Committee 03**

**LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION**

*For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.*

<b>REC number:</b>	07/S1103/61	<b>Issue number:</b>	0	<b>Date of issue:</b>	05 February 2008
<b>Chief Investigator:</b>	Miss Fiona E Mair				
<b>Full title of study:</b>	Attachment style and violence in individuals with psychosis				

*This study was given a favourable ethical opinion by Lothian Local Research Ethics Committee 03 on 16 January 2008. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.*

<i>Principal Investigator</i>	<i>Post</i>	<i>Research site</i>	<i>Site assessor</i>	<i>Date of favourable opinion for this site</i>	<i>Notes <sup>(1)</sup></i>
Miss Fiona E Mair	Trainee Psychologist	Clinical NHS Lothian	Lothian Research Committee 03	05/02/2008	

Approved by the Chair on behalf of the REC:

Signature of ~~Chair~~/Co-ordinator)

(delete as applicable)

..... Liz Harden ..... (Name)

(1) The notes column may be used by the main REC to record the early closure or withdrawal of a site (where notified by the Chief Investigator or sponsor), the suspension of termination of the favourable opinion for an individual site, or any other relevant development. The date should be recorded.

## **Appendix II**

Letters of Research and Development Approval

Please Note: Safe Haven Fax No: 01555-840112

Our Ref: SY/GB  
Your Ref:

Enquiries to: Gemma Blair  
Direct Line 01555 842042  
[gemma.blair@tsh.scot.nhs.uk](mailto:gemma.blair@tsh.scot.nhs.uk)

8 May 2008

Fiona Mair  
Trainee Clinical Psychologist  
The State Hospital  
Carstairs  
Lanark  
ML11 8RP

Dear Ms Mair

Re: Attachment Style and Violence in Individuals with Psychosis

I have now received correspondence from Jamie Pitcairn, Research and Development Manager, in respect of your proposed project. I note that the Research Committee has indicated their approval and support for your study and that the Lothian Research and Ethics Committee has also approved. All that remains is for me to supply final management approval for the project, which I now do, and may I take the opportunity to wish you every success with your project.

Yours sincerely

Associate Medical Director  
Chair of the Research and Governance Funding Committee

cc Jamie Pitcairn.

HAC/SM/approval/2f

18th February 2008

Miss Fiona Mair  
Trainee Clinical Psychologist  
The Orchard Clinic  
Royal Edinburgh Hospital  
Tipperlinn Road  
Edinburgh  
EH10 5HF

**RESEARCH & DEVELOPMENT OFFICE**  
Room E1.12

Tel: 0131 242 3330

Fax: 0131 242 3343

Email: R&DOffice@luht.scot.nhs.uk

Director: Professor Heather A Cubie

Dear Miss Mair

MREC No:	N/A
CRF No:	N/A
LREC No:	07/S1103/61
R&D ID No:	2008/P/PSY/03
Title of Research	Attachment style and violence in individuals with psychosis
Protocol No/Acronym:	N/A

The above project has undergone an assessment of risk to NHS Lothian and review of resource and financial implications. I am satisfied that all the necessary arrangements have been set in place and that all Departments contributing to the project have been informed.

I note that this is a multi-centre study sponsored by **University of Edinburgh and NHS Lothian**.

On behalf of the Chief Executive and Medical Director, I am happy to grant management approval from NHS Lothian to allow the project to commence, subject to the approval of the appropriate Research Ethics Committee(s) having also been obtained. You should note that any substantial amendments must be notified to the relevant Research Ethics Committee and to R&D Management with approval being granted from both before the amendments are made.

Please note that under Section A, Q35, NHS Lothian provides indemnity for negligence for NHS and Honorary clinical staff for research associated with their clinical duties. It is not empowered to provide non-negligent indemnity cover for patients. NHS Lothian does not provide indemnity against negligence for healthy volunteer studies. This is the personal responsibility of both NHS and honorary employees and is usually arranged with a medical defence organisation or through the University of Edinburgh.

This letter of approval is your assurance that NHS Lothian is satisfied with your study. As Chief Investigator or local Principal Investigator, you should be fully committed to your responsibilities within the Research Governance Framework for Health and Community Care, an extract of which is attached to this letter.

Yours sincerely

**Professor Heather A Cubie**  
R&D Director

Enc Research Governance Certificate  
Tissue Policy (if applicable)  
MTA (if applicable)

☒ (to be signed and returned)  
☐  
☐ (to be signed and returned by the recipient of Tissue)

Copies Administrators, Research Ethics Committee

## NHS Lothian - University Hospitals Division

Research & Development Office, Royal Infirmary of Edinburgh

Project ID: 2008/P/PSY/03

Project Title: Attachment style and violence in individuals with psychosis.

REC Ref: 07/S1103/61

Principal Investigator: Miss Fiona Mair

### RESEARCH GOVERNANCE FRAMEWORK (RGF) FOR HEALTH & COMMUNITY CARE

The framework is of direct relevance to all those who host, conduct, participate in, fund and manage health and community care research. The framework applies to all managers and staff, in all professional groups, irrespective of seniority.

#### Research Governance

- Sets standards
- Defines mechanisms to deliver standards
- Requires monitoring and assessment
- Improves research quality & safeguards the public

#### Responsibilities and Accountabilities of Principal Investigator (PI)

The PI must take responsibility for the conduct of the research and is accountable for this to their employer, and, through them, to the sponsor of the research and to the care organisation(s) within which the research takes place or through which participants, their organs, tissue or data are accessed. The PI must have adequate qualifications and experience to take on these responsibilities.

#### In brief, they must ensure that:

- The dignity, rights, safety and well being of participants are given priority at all times by the research team.
- Ethical and management approval is obtained **BEFORE** study commences.
- Care professionals involved with patients are informed of study and its protocols.
- Study complies with all legal and ethical requirements e.g. data protection, informed consent & with RGF.
- Each member of the research team is qualified to discharge their role in study and that students are adequately supervised.
- When a study involves participants under the care of a doctor, nurse or other worker for the condition in which the study relates, those care professionals are informed that their patients or users are being invited to participate and agree to retain overall responsibility for their care.
- If any information relevant to the care of a patient arises through research, the patient's care professional must be notified. Unless, the patient or the relevant research ethics committee request otherwise.
- Reporting all adverse events, including adverse drug reactions through the appropriate systems.
- Controlled trials are registered.
- Research follows an approved protocol - any proposed changes or amendments to protocol are notified to the appropriate research ethics committee, sponsor and research host.
- Findings open to critical review through accepted scientific and professional channels and disseminated promptly.
- Key role in detecting and preventing scientific misconduct, by adopting role of guarantor on published outputs.
- Arrangements in place for financial management of the study and any Intellectual Property arising from it.
- All data are stored appropriately at end of study and are available for audit.
- Procedures are in place to ensure quality data are collected, processed, analysed, stored and archived
- Progress reports are sent to sponsors promptly and are of an acceptable standard

For further information and access to the complete Research Governance document visit: -  
<http://www.show.scot.nhs.uk/cso>

Date: 18/02/2008 1

Signature: \_\_\_\_\_

## **Appendix III**

Letter to RMO's

Address  
Contact Details

Consultant/ RMO's Address

Date

Dear (Consultant/ RMO's name)

**Re: Research Study- "Attachment style and violence in individuals with psychosis."  
(V1)**

I am currently undertaking the above research study as part of my doctoral training to become a Clinical Psychologist. The main aim of the project is to investigate the relationship between adult attachment style and violent/aggressive behaviour in individuals with psychosis. I hope to recruit patient participants from your area and would be most grateful if you would consider assisting me in this.

I aim to recruit 82 individuals in total from XXX, XXX, and XXX. The study would require the participants to meet with myself on one occasion to complete 3 questionnaires. I would also meet up with the participant's key-worker or named nurse to complete a further 2 questionnaires and would require access to the participant's case notes to collect demographic information. Informed consent would be obtained from each participant prior to their involvement in the study.

The inclusion criteria for participants in the study are:

- A documented diagnosis of schizophrenia, schizotypal, schizoaffective or delusional disorder (ICD-10)
- Currently receiving in-patient care from mental health services.

The exclusion criteria for the study are:

- Significant brain injury or severe intellectual disability.
- A diagnosis of autistic spectrum disorder
- Any conviction of sexual offences involving children
- Inability to give informed consent.
- Non-English speaking individuals

In addition, I would require someone from the clinical team or the key-worker or named nurse to make the initial approach to any identified potential participants and provide them with in Information sheet.

I have enclosed the research protocol which outlines the aims, hypotheses, methodology etc of the study and I have also enclosed the 'Participant Information sheet' which will be provided to potential participants to help them decide whether or not they wish to participate.

I would be happy to come and meet with you and the clinical team in order to discuss this in more detail and answer any questions you may have. I look forward to hearing from you.

Yours sincerely

Fiona Mair  
Trainee Clinical Psychologist.

21.01.2008 Version 2



## **Appendix IV**

Letter to potential participants

Address

Potential participant's address

Date

Dear (Potential participant's name)

**Re: Research Study- "Attachment style and violence in individuals with psychosis."  
(A study of relationships and behaviour in individuals with a diagnosis of mental illness)**

I am a Trainee Clinical Psychologist at XXXXX and am currently working on the above research study as part of my training.

The study aims to look at the relationships of individuals who have experienced mental illness. Specifically, whether the way in which an individual interacts with others might be linked to difficulties with aggression or anger.

I would like to invite you take part in the study and have enclosed an information sheet which explains more about the study and what would be involved if you chose to take part.

Please feel free to ask any questions you may have about the study.

Yours sincerely

Fiona Mair  
Trainee Clinical Psychologist.

## **Appendix V**

Participation information sheet

## **Participant Information Sheet**

**Study title: “Attachment style and violence in individuals with psychosis.”  
(A study of relationships and behaviour in individuals with a  
diagnosis of mental illness)**

I would like to invite you to take part in a research study. Before you decide whether you would like to participate, it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

*Please ask if there is anything that is not clear or if you would like more information.  
Take time to decide whether or not you wish to take part.*

### **What is the purpose of the study?**

Previous studies have shown that our relationships in early childhood (with parents or other care-givers) are important and that these tend to influence how we interact with other people throughout our life. For people with mental illness, there is some evidence that their early childhood relationships lead to the development of specific ways of interacting with others in adulthood and that this can lead to some difficulties.

The study aims to look at the relationships of individuals who have experienced mental illness. Specifically, whether the way in which an individual interacts with others might be linked to difficulties with aggression or anger.

It is hoped that the findings of the study will improve our understanding of mental illness and that this would help us to make decisions about the best types of therapy to offer.

### **Why have I been invited to participate?**

The study is taking place in different services and we are inviting most individuals with a diagnosis of schizophrenia, schizotypal or delusional disorder to participate.

### **Do I have to take part?**

It is up to you to decide whether you want to take part. I will describe the study to you and go through this information sheet, which we will then give to you. You will have up to week to decide. If you agree to participate you will be asked to sign a consent form to show that you have agreed to take part. You are free to withdraw from the study at any time. Your decision to participate, or not, will not affect your care and treatment in any way.

### **What would I have to do?**

Once I know that you are willing to take part and you have signed the consent form to confirm this, I would arrange to meet with you on one occasion for approximately 50 minutes.

Together we would complete 3 different questionnaires:

1. A questionnaire looking at your relationship patterns

2. A questionnaire which looks at anger and how you manage your emotions
3. A questionnaire which asks about your experiences of symptoms of mental illness.

**What else would happen?**

I would meet with one of the nurses on your ward who knows you and ask them to help me complete 2 questionnaires. These questionnaires would ask them to give their opinion on the way you interact with others and how you manage your emotions.

I would also look at your patient notes to gather some background information and confirm any diagnosis you have been given.

**Will my taking part in the study be kept confidential?**

Yes. The information collected for the purpose of the study will be confidential. I would however let nursing staff know if you seemed upset or unsettled during our meeting

Any information collected about you will have your name and any other identifying information removed so that you cannot be recognised. The information collected will be stored securely.

**What will happen to the results of the study?**

The study is being carried out as part of my training to become a clinical psychologist and so will be written up as part of my dissertation. It is also hoped that the findings may be published as scientific research. In both cases, no identifiable information will be used.

You may wish to know the results of the study. If so, you can request a summary through your clinical team or RMO who will have my contact details.

**Are there any potential benefits or risks to taking part?**

Taking part is unlikely to benefit you directly. However it is hoped that the findings will help to improve our understanding of people with mental illness and their relationships. This might help us to offer the most suitable types of therapies.

Please note that your decision to participate will **not** have any influence on your care or treatment.

Please also be aware that sometimes people may find it difficult or upsetting, talking about their symptoms or their emotions. Please feel free to ask about this if you think this would be the case. Remember that you would be entitled to stop at any time if you felt uncomfortable or upset during our meeting.

**Any questions?**

Please feel free to ask any questions you may have or if there is anything you would like me to explain in more detail.

**Contact details**

## **Appendix VI**

Consent forms

Centre Number:  
Patient Identification Number:

## CONSENT FORM

Title of Project: "Attachment style and violence in individuals with psychosis": (A study of relationships and behaviour in individuals with a diagnosis of mental illness.)

Name of Researcher: Fiona Mair

Please initial box

1. I confirm that I have read and understand the participant information sheet (Version2) for the above study. ☐
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
4. I understand that the above named researcher will meet with my key-worker (or equivalent) to discuss how I interact with others and how I manage my emotions. ☐
5. I understand that relevant sections of my medical notes and data collected during the study, may be looked at by the researcher, where it is relevant to my taking part in this research. I give permission for the researcher to have access to my records. ☐
6. I agree to take part in the above study. ☐

\_\_\_\_\_  
Name of Patient

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Centre Number:  
Participant Identification Number:

## CONSENT FORM

Title of Project: "Attachment style and violence in individuals with psychosis": (A study of relationships and behaviour in individuals with a diagnosis of mental illness.)

Name of Researcher: Fiona Mair

Participant name: .....

Please initial box

1. I confirm that I am the key-worker (or equivalent) for the above named patient.
2. I agree to meet with the above named researcher for the purposes of completing 2 questionnaires as part of the above research study.
3. I confirm that the above named patient has given informed consent for me to do so.

\_\_\_\_\_  
Name of staff member

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## **Appendix VII**

### Measures

**SELF-REPORT MEASURE**

We all differ in how we relate to other people. This questionnaire lists different thoughts, feelings and ways of behaving in relationships with others.

**PART A**

Thinking generally about how you relate to other key people in your life, please use a tick to show how much each statement is like you. Key people could include family members, friends, partner or mental health workers.

There are no right or wrong answers

	Not at all	A little	Quite a bit	Very much
1. I prefer not to let other people know my ‘true’ thoughts and feelings.	(..)	(..)	(..)	(..)
2. I find it easy to depend on other people for support with problems or difficult situations.	(..)	(..)	(..)	(..)
3. I tend to get upset, anxious or angry if other people are not there when I need them.	(..)	(..)	(..)	(..)
4. I usually discuss my problems and concerns with other people.	(..)	(..)	(..)	(..)
5. I worry that key people in my life won’t be around in the future.	(..)	(..)	(..)	(..)
6. I ask other people to reassure me that they care about me.	(..)	(..)	(..)	(..)
7. If other people disapprove of something I do, I get very upset.	(..)	(..)	(..)	(..)
8. I find it difficult to accept help from other people when I have problems or difficulties.	(..)	(..)	(..)	(..)
9. It helps to turn to other people when I’m stressed.	(..)	(..)	(..)	(..)
10. I worry that if other people get to know me better, they won’t like me.	(..)	(..)	(..)	(..)

	<b>Not at all</b>	<b>A little</b>	<b>Quite a bit</b>	<b>Very much</b>
11. When I'm feeling stressed, I prefer being on my own to being in the company of other people.	(..)	(..)	(..)	(..)
12. I worry a lot about my relationships with other people.	(..)	(..)	(..)	(..)
13. I try to cope with stressful situations on my own.	(..)	(..)	(..)	(..)
14. I worry that if I displease other people, they won't want to know me anymore.	(..)	(..)	(..)	(..)
15. I worry about having to cope with problems and difficult situations on my own.	(..)	(..)	(..)	(..)
16. I feel uncomfortable when other people want to get to know me better.	(..)	(..)	(..)	(..)

## **PART B**

In answering the previous questions, what relationships were you thinking about?

---

(E.g. relationship with mother, father, sister, brother, husband, wife, friend, romantic partner, mental health workers etc)

# NAS-PI

## AutoScore™ Form

Raymond W. Novaco, Ph.D.

Name: \_\_\_\_\_ ID Number: \_\_\_\_\_ Age: \_\_\_\_\_

Date: \_\_\_\_\_ Examiner ID: \_\_\_\_\_ Gender: ☐ Female ☐ Male

Education (Years Completed): ☐ <6 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ >16

Race/Ethnicity: ☐ American Indian/Alaska Native ☐ Asian ☐ Black/African American ☐ Hispanic/Latino

☐ Native Hawaiian/Pacific Islander ☐ White ☐ Other \_\_\_\_\_

The statements in Part A describe things that people sometimes think, feel, and do. How true are they for you? For each statement, indicate whether it is (1) never true, (2) sometimes true, or (3) always true. Circle the number that best describes how true the statement is for you.

Never true	Sometimes true	Always true	<b>PART A</b>	
1	2	3	1.	When something wrong is done to me, I am going to get angry.
1	2	3	2.	Once something makes me angry, I keep thinking about it.
1	2	3	3.	Every week I meet someone I dislike.
1	2	3	4.	I know that people are talking about me behind my back.
1	2	3	5.	When something makes me angry, I put it out of my mind and think of something else.
1	2	3	6.	Some people would say that I am a hothead.
1	2	3	7.	My muscles feel tight and wound-up.
1	2	3	8.	When I get angry, I stay angry for hours.
1	2	3	9.	I walk around in a bad mood.
1	2	3	10.	If I feel myself getting angry, I can calm myself down.
1	2	3	11.	My temper is quick and hot.
1	2	3	12.	When someone yells at me, I yell back at them.
1	2	3	13.	I have had to be rough with people who bothered me.
1	2	3	14.	I feel like smashing things.
1	2	3	15.	When I am frustrated by a problem, I try to find a solution.
1	2	3	16.	I get angry because I have a good reason to be angry.
1	2	3	17.	I can't sleep when something wrong has been done to me.
1	2	3	18.	If I don't like someone, it doesn't bother me to hurt their feelings.
1	2	3	19.	People can be trusted to do what they say.
1	2	3	20.	I try to see positive things in other people.
1	2	3	21.	When I get angry, I get really angry.
1	2	3	22.	When I think about something that makes me angry, I get even more angry.
1	2	3	23.	I feel agitated and unable to relax.
1	2	3	24.	I get annoyed when someone interrupts me.
1	2	3	25.	I am able to stay cool in the face of pressure.
1	2	3	26.	If someone bothers me, I react first and think later.
1	2	3	27.	If I don't like somebody, I'll tell them off.
1	2	3	28.	When I get mad, I can easily hit someone.
1	2	3	29.	When I get angry, I throw or slam things.
1	2	3	30.	When I have a conflict with someone, I speak to that person about the problem.
1	2	3	31.	If I lose my temper with someone, it's because they deserved it.
1	2	3	32.	When someone makes me angry, I think about getting even.
1	2	3	33.	If someone cheats me, I'd make them feel sorry.
1	2	3	34.	People act like they are being honest when they really have something to hide.
1	2	3	35.	If someone says something nasty, I can swallow my pride and let it go.
1	2	3	36.	When I get angry, I feel like smashing things.
1	2	3	37.	Some people get angry and get over it, but for me it takes a long time.

*continue on back page*

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Never true	Sometimes true	Always true	
1	2	3	38. I have trouble sleeping or falling asleep.
1	2	3	39. A lot of little things bug me.
1	2	3	40. When I get agitated, I can relax by taking deep breaths.
1	2	3	41. I have a fiery temper that arises in an instant.
1	2	3	42. Some people need to be told to "get lost."
1	2	3	43. If someone hits me first, I hit them back.
1	2	3	44. When I get angry at someone, I take it out on whomever is around.
1	2	3	45. If I disagree with someone, I try to say something constructive.
1	2	3	46. The more someone bothers me, the more I'll get angry.
1	2	3	47. I feel like I am getting a raw deal out of life.
1	2	3	48. When I don't like somebody, there's no point in being nice to them.
1	2	3	49. When someone does something nice for me, I wonder about the hidden reason.
1	2	3	50. If someone is bothering me, I try to understand why.
1	2	3	51. It makes my blood boil to have someone make fun of me.
1	2	3	52. When I get mad at someone, I give them the silent treatment.
1	2	3	53. My head aches when people annoy me.
1	2	3	54. It bothers me when someone does things the wrong way.
1	2	3	55. I can get rid of tension by imagining something calm and relaxing.
1	2	3	56. When I get angry, I fly off the handle before I know it.
1	2	3	57. When I start to argue with someone, I don't stop until they do.
1	2	3	58. Some people need to get knocked around.
1	2	3	59. If someone makes me angry, I'll tell other people about them.
1	2	3	60. I can walk away from an argument.

**Continue with the following items, unless you have been told to stop here.**

For the statements in Part B, decide how angry each situation would make you feel. Circle the number that best describes how angry situation would make you feel. Please give an answer for each statement, and give only one answer to each statement.

Not at all angry	A little angry	Fairly angry	Very angry	
1	2	3	4	<b>PART B</b>
1	2	3	4	1. Being criticized in front of other people for something that you have done.
1	2	3	4	2. You see someone bully another person who is smaller or less powerful.
1	2	3	4	3. Someone keeps making noise when you are trying to concentrate.
1	2	3	4	4. People who act like they know it all.
1	2	3	4	5. Being slowed down by another person's mistakes.
1	2	3	4	6. Someone cuts in front of you when you are in line to get something.
1	2	3	4	7. You are watching a TV program, when someone comes along and switches the channel.
1	2	3	4	8. People who don't really listen when you talk to them.
1	2	3	4	9. You get cold food that is supposed to be hot.
1	2	3	4	10. Someone looking over your shoulder while you are working.
1	2	3	4	11. Someone else gets credit for work that you did.
1	2	3	4	12. People who think that they are better than you are.
1	2	3	4	13. Someone makes fun of the clothes you are wearing.
1	2	3	4	14. You get singled out for correction, when someone else doing the same thing is ignored.
1	2	3	4	15. You make plans to do something with a person who backs out at the last minute.
1	2	3	4	16. People who think that they are always right.
1	2	3	4	17. Just after waking up in the morning, someone starts giving you a hard time.
1	2	3	4	18. Someone looks through your things without your permission.
1	2	3	4	19. Being accused of something that you didn't do.
1	2	3	4	20. You lend something to someone, and they fail to return it.
1	2	3	4	21. Someone who is always disagreeing with you.
1	2	3	4	22. You are hungry and tired, and someone plays a practical joke on you.
1	2	3	4	23. You are overcharged by someone for a repair.
1	2	3	4	24. You need to get somewhere in a hurry, but you get stuck in traffic.
1	2	3	4	25. You are carrying a hot drink, and someone bumps into you.

# **AUDITORY HALLUCINATION RATING SCALE**

Gillian Haddock  
University of Manchester, 1994

## GENERAL INSTRUCTIONS

The following structured interview is designed to elicit specific details regarding different dimensions of auditory hallucinations. When asking questions, the interview is designed to rate the patient's experiences over the last week for the majority of items. There are two exceptions to this e.g. when asking about beliefs regarding cause of voices, rate the patients response based on what they believe at the time of interview. Also loudness of voices should be rated according to the loudness of voices at the time of interview or the last time the patient experienced them.

Name: -----

Age: -----

Sex: M/F

Diagnosis: (if relevant) -----

Length of time experiencing voices (years): -----

Hallucination in other modalities: Visual/olfactory/gustatory/tactile

## AUDITORY HALLUCINATIONS : SCORE SHEET

	SCORE
1. FREQUENCY	<input type="text"/>
2 DURATION	<input type="text"/>
3 LOCATION	<input type="text"/>
4 LOUDNESS	<input type="text"/>
5 BELIEFS RE-ORIGIN OF VOICES	<input type="text"/>
6 AMOUNT OF NEGATIVE CONTENT OF VOICES	<input type="text"/>
7 DEGREE OF NEGATIVE CONTENT	<input type="text"/>
8 AMOUNT OF DISTRESS	<input type="text"/>
9 INTENSITY OF DISTRESS	<input type="text"/>
10 DISRUPTION	<input type="text"/>
11 CONTROL	<input type="text"/>



## AUDITORY HALLUCINATIONS : SCORING CRITERIA

### 1. FREQUENCY

How often do you experience voices: e.g. every day, all day long etc.

- 0     Voices not present or present less than once a week (specify frequency if present)
- 1     Voices occur at least once a week
- 2     Voices occur at least once an day
- 3     Voices occur at least once an hour
- 4     Voices occur continuously or almost continually i.e. stop only for a few seconds or minutes

### 2. DURATION

When you hear your voices, how long do they last e.g. few seconds, minutes, hours, all day long?

- 0     Voices not present
- 1     Voices last for a few seconds, fleeting voices
- 2     Voices last for several minutes
- 3     Voices last for at least one hour
- 4     Voices last for hours at a time

3. **LOCATION**

When you hear your voices where do they sound like they're coming from?

- Inside your head and./or outside your head?
- If voices sound like they are outside your head, whereabouts do they sound like they are coming from?

0 No voices present

1 Voices originate inside head only

2 Voices outside the head, but close to ears or head  
Voices inside the head may also be present

3 Voices originate inside or close to ears and outside head away from ears

4 Voices originate from outside space, away from head only

4. **LOUDNESS**

How loud are your voices?

Are they louder than your voice, about the same loudness, quieter or just a whisper?

0 Voices not present

1 Quieter than own voice, whispers

2 About same loudness as own voice

3 Louder than own voice

4 Extremely loud, shouting

5. **BELIEFS RE-ORIGIN OF VOICES**

What do you think has caused your voices?

- Are the voices caused by factors related to yourself or solely due to other people or factors?

If patient expresses an external origin:

- How much do you believe that your voices are caused by ----- (add patient's attribution) on a scale from 0-100 with 100 being that you are totally convinced, have no doubts and 0 being that it is completely untrue?

0      Voices not present

1      Believes voices to be solely internally generated and related to self

2      Holds a less than 50% conviction that voices originate from external causes

3      Holds 50% or more conviction (but less than 100%) that voices originate from external cause

4      Believes voices are solely due to external causes (100% conviction)

6. **AMOUNT OF NEGATIVE CONTENT OF VOICES**

Do your voices say unpleasant or negative things?

- Can you give me some examples of what the voices say? (record these e.g.'s)
- How much of the time do the voices say these type of unpleasant or negative items:?

0      No unpleasant content

1      Occasional unpleasant content

2      Minority of voice content is unpleasant or negative (less than 50%)

3      Majority of voice content is unpleasant or negative (more than 50%)

4      All of voice content is unpleasant or negative

7. **DEGREE OF NEGATIVE CONTENT**

[Rate using criteria on scale, asking patient for more detail if necessary]

- 0 Not unpleasant or negative
- 1 Some degree of negative content, but not personal comments relating to self or family e.g. swear words or comments not directed to self, e.g. "the milkmen ugly"
- 2 Personal verbal abuse, comments or behaviour e.g. "shouldn't do that, or say that"
- 3 Personal verbal abuse relating to self-concept e.g. "you're lazy, ugly, mad, perverted"
- 4 Personal threats to self e.g. threats to harm to self or family, extreme instructions or commands to harm self or others and personal verbal abuse as in (3)

8. **AMOUNT OF DISTRESS**

Are your voices distressing?

- How much of the time?

- 0 Voices not distressing at all
- 1 Voices occasionally distressing, majority not distressing
- 2 Equal amounts of distressing and non-distressing voices
- 3 Majority of voices distressing, minority not distressing
- 4 Voices always distressing

9. **INTENSITY OF DISTRESS**

When voices are distressing, how distressing are they?

- Do they cause you minimal, moderate, severe distress?
- Are they the most distressing they have ever been?

0 Voices not distressing at all

1 Voices slightly distressing

2 Voices are distressing to a moderate degree

3 Voices are very distressing, although subject could feel worse

4 Voices are extremely distressing, feel the worst he/she could possibly feel

10. **DISRUPTION TO LIFE CAUSED BY VOICES**

How much disruption do the voices cause to your life?

- Do the voices stop you from working or other daytime activity?
- Do they interfere with your relationship with friends and/or family?
- Do they prevent you from looking after yourself, e.g. bathing, changing clothes etc.?

0 No disruption to life, able to maintain independent living with no problems in daily skills. Able to maintain social and family relationships (if present)

1 Voices cause minimal amount of disruption to life, e.g. interferes with concentration although able to maintain daytime activity and social and family relationships and able to maintain independent living without support

2 Voices cause moderate amount of disruption to life causing some disturbance to daytime activity and/or family or social activities. The patient is not in hospital although may live in supported accommodation or receive additional help with daily living skills.

3 Voices cause severe disruption to life so that hospitalisation is usually necessary. The patient is able to maintain some daily activities, self-care and relationships whilst in hospital. The patient may also be in supported accommodation but experiencing severe disruption of life in terms of activities, daily living skills and/or relationships.

4 Voices cause complete disruption of daily life requiring hospitalisation. The patient is unable to maintain any daily activities and social relationships. Self-care is also severely disrupted.

11. CONTROLLABILITY OF VOICES

- Do you think you have any control over when your voices happen?
- Can you dismiss or bring on your voices?

- 0 Subject believes they can have control over their voices and can always bring on or dismiss them at will
- 1 Subject believes they can have some control over the voices on the majority of occasions
- 2 Subject believes they can have some control over their voices approximately half of the time
- 3 Subject believes they can have some control over their voices but only occasionally. The majority of time the subject experiences voices which are uncontrollable.
- 4 Subject has no control over when the voices occur and cannot dismiss or bring them on at all.

## NUMBER OF VOICES

How many different voices have you heard over the last week?

No. of voices =

## FORM OF VOICES

1 <sup>st</sup> person	Yes/No	(n= )
2 <sup>nd</sup> person	Yes/No	(n= )
3 <sup>rd</sup> person	Yes/No	(n= )
Single words or phrases without pronouns	Yes/No	(n= )

AUDITORY HALLUCINATION RATING SCALE SCORE SHEET

Assessment No

Assessment Date

Centre No 

0	1
---	---

Course No 

A	1
---	---

Nurse No 

--	--

Client No 

--	--

- |     |                            |                      |
|-----|----------------------------|----------------------|
| 1.  | Frequency                  | <input type="text"/> |
| 2.  | Duration                   | <input type="text"/> |
| 3.  | Location                   | <input type="text"/> |
| 4.  | Loudness                   | <input type="text"/> |
| 5.  | Beliefs about Origin       | <input type="text"/> |
| 6.  | Amount of Negative Content | <input type="text"/> |
| 7.  | Degree of Negative Content | <input type="text"/> |
| 8.  | Amount of Distress         | <input type="text"/> |
| 9.  | Intensity of Distress      | <input type="text"/> |
| 10. | Disruption                 | <input type="text"/> |
| 11. | Control                    | <input type="text"/> |



## DELUSIONS RATING SCALE

SCORING PER QUESTION.

Gillian Haddock  
University of Manchester, 1994

## GENERAL INSTRUCTIONS

The following structured interview is designed to elicit specific details regarding different dimensions of delusional beliefs. When asking questions, the interview is designed to rate the patients experience over the last month for the majority of items. There is one exception to this. When rating conviction, ask the patient about their conviction at the time of interview.

Name: -----

Age: -----

Sex: M/F

Diagnosis: (if relevant) -----

Length of time experiencing delusional beliefs (years): -----

Please specify individual delusional beliefs: 3

## DELUSIONS : SCORE SHEET

SCORE

1. AMOUNT OF PREOCCUPATION

2. DURATION OF PREOCCUPATION

3. CONVICTION

4. AMOUNT OF STRESS

5. INTENSITY OF DISTRESS

6. DISRUPTION

# D E L U S I O N S : S C O R I N G C R I T E R I A

## 1. AMOUNT OF PREOCCUPATION WITH DELUSIONS

How much time do you spend thinking of your beliefs?

- all the time/daily/weekly etc.?

0 No delusions

1 Subject thinks about beliefs at least once a month

2 Subject thinks about beliefs at least once a week

3 Subject thinks about beliefs at least once a day

4 Subject thinks about delusions at least hourly

## 2. DURATION OF PREOCCUPATION WITH DELUSIONS

When the beliefs come into your mind, how long do they persist?

- Few seconds/minutes/hours etc.?

0 No delusions

1 Thoughts about beliefs last for a few seconds, fleeting thoughts

2 Thoughts about delusions last for several minutes

3 Thoughts about delusions last for at least one hour

4 Thoughts about delusions usually last for hours at a time

3. **CONVICTION** (at the time of interview)

At the present time how convinced are you that your beliefs are true? Can you estimate this on a scale from 0-100. where 100 means that you are totally convinced by your beliefs and 0 being that you are not convinced at all?

- 0 No convictions at all
- 1 Very little conviction in reality of beliefs, less than 10%
- 2 Some doubts relating to conviction in beliefs, between 10-49%
- 3 Conviction in belief is very strong, between 50-99%
- 4 Conviction is 100%

3. **AMOUNT OF DISTRESS**

<sup>beliefs</sup>  
Do your ~~voices~~ cause you distress?  
How much of the time do they cause you distress?

- 0 Beliefs never cause distress
- 1 Beliefs cause distress on the minority of occasions
- 2 Beliefs cause distress on approximately 50% of occasions
- 3 Beliefs cause distress on the majority of occasions when they occur between 50-99% of time
- 4 Beliefs always cause distress when they occur

4. **INTENSITY OF DISTRESS**

When your beliefs distress you, how severe does this feel?

- 0 No distress
- 1 Beliefs cause slight distress
- 2 Beliefs cause moderate distress
- 3 Beliefs cause marked distress
- 4 Beliefs cause extreme distress, couldn't be worse

5. **DISRUPTION TO LIFE CAUSED BY BELIEFS**

How much disruption do your beliefs cause you?

- Do they prevent you from working or carrying out a day-time activity?
  - Do they interfere with your relationships with family or friends?
  - Do they interfere with your ability to look after yourself e.g. washing, changing clothes etc.?
- 
- 0 No disruption to life
  - 1 Minimal amount of disruption to life, e.g. interfere with concentration although able to maintain day time activity and social and family relationships
  - 2 Moderate amount of disruption to life causing some disturbance to daytime activity and/or family or social activities
  - 3 Severe disruption although able to maintain a minimal amount of social or work activities
  - 4 Beliefs cause complete disruption of day to day life e.g. inability to work or do daytime activities, prevent self-care, inability to maintain any social network, cause complete breakdown or development of family relationships

# DELUSIONS RATING SCALE SCORE SHEET

Assessment No

Assessment Date

--	--	--

Centre No

0	1
---	---

Course No

A	1
---	---

Nurse No

--	--

Client No

2	
---	--

1. Amount of Preoccupation

2. Duration of Preoccupation

3. Conviction

4. Amount of Distress

5. Intensity of Distress

6. Disruption

WARD ANGER RATING SCALE

Patient name ..... Ward .....

Rater's name ..... Date started .....

Part A:

Directions: Please rate the patient during the past week for each of the items below by circling your chosen response, as shown:

1. Expressed suspicion of others Yes No

During the past week has the patient: 1 0

1. Expressed suspicion of others	Yes	No
2. Blamed someone else for his/her difficulties	Yes	No
3. Acted impulsively, without self restraint	Yes	No
4. Had a temper tantrum	Yes	No
5. Shouted or yelled	Yes	No
6. Verbally abused someone	Yes	No
7. Verbally threatened to attack someone – Staff	Yes	No
8. Verbally threatened to attack someone – Patient	Yes	No
9. Physically attacked – Staff	Yes	No
10. Physically attacked – Patient	Yes	No
11. Slammed, threw or deliberately broke something	Yes	No
12. Talked of suicide	Yes	No
13. Attempted suicide	Yes	No
14. Talked of injuring self	Yes	No
15. Attempted to injure self	Yes	No
16. Expressed delusional beliefs	Yes	No
17. Expressed command hallucinations to do harm – to Self	Yes	No
18. Expressed command hallucinations to do harm – to Others	Yes	No

Part B:

Directions: Tick the corresponding box for your chosen response, as shown:

	Not at all 0	Very little 1	Sometimes 2	Fairly often 3	Very often 4
19. Angry or annoyed		✓			

During the past week, to what extent was the patient:

	Not at all 0	Very little 1	Sometimes 2	Fairly often 3	Very often 4
19. Angry or annoyed					
20. Irritable or grouchy					
21. Resistant to suggestions or requests					
22. Impatient or frustrated					
23. Tense or uptight					
24. Agitated or restless					
25. Bitter or resentful					



# **BEHAVIOURAL STATUS INDEX** **RISK ASSESSMENT SUB-SCALE**

**NAME:** \_\_\_\_\_

**WARD:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**RATER:** \_\_\_\_\_

(N.B: Please use only the stated criteria when completing this score sheet.  
Ring appropriate number on the scale of 1 to 5 for each factor)

1	Family support	1	2	3	4	5
2	Serious violence to others without apparent trigger event	1	2	3	4	5
3	Serious violence to others following trigger event	1	2	3	4	5
4	Minor violence to others without apparent trigger event	1	2	3	4	5
5	Minor violence to others following trigger event	1	2	3	4	5
6	Serious self harm	1	2	3	4	5
7	Superficial self harm	1	2	3	4	5
8	Verbal aggression without apparent trigger event	1	2	3	4	5
9	Verbal aggression following trigger event	1	2	3	4	5
10	Attacks on objects without apparent trigger event	1	2	3	4	5
11	Attacks on objects following trigger event	1	2	3	4	5
12	Breaches of security	1	2	3	4	5
13	Disruptive episodes	1	2	3	4	5
14	Imitative disruption	1	2	3	4	5
15	Inappropriate sexual behaviours	1	2	3	4	5
16	Sado-masochistic behaviours	1	2	3	4	5
17	Macho gear and adornment	1	2	3	4	5
18	Obsessive-compulsive behaviours	1	2	3	4	5
19	Substance abuse	1	2	3	4	5
20	Psychiatric disturbance	1	2	3	4	5

## **Appendix VIII**

Data transformations

**Appendix VIII: Data transformations**

*Psychosis Attachment Measure (PAM)*

The distribution of the data for the PAM attachment anxiety subscale was positively skewed as is illustrated in Figure VIII.1.

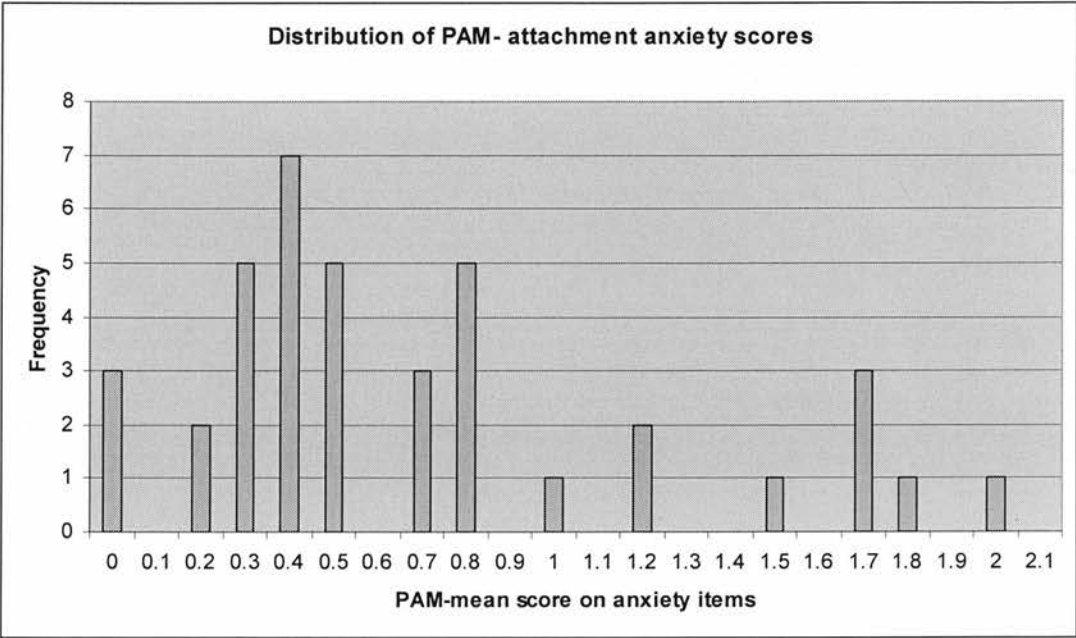


Figure VIII.1: Original frequency distribution of PAM-anxiety sub-scale depicting positively skewed distribution.

Clark-Carter (1997) recommends using the square root to transform positively skewed data. This was tried and as is shown in Figure VIII.2, it transformed data sufficiently to allow parametric tests to be used with this data.

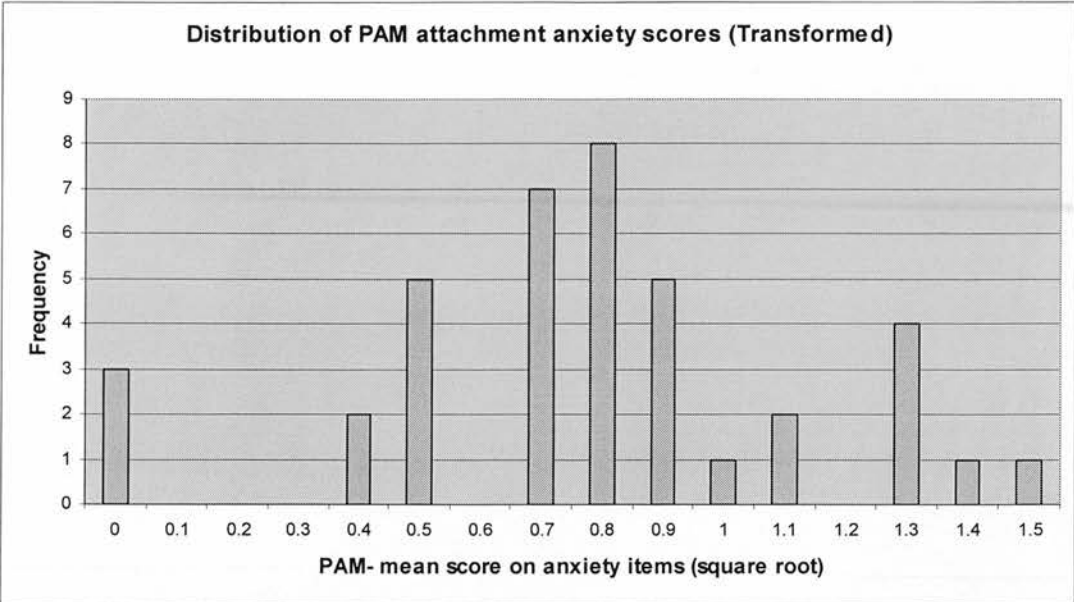


Figure VIII.2: Distribution of PAM anxiety scores following data transformation using the square root of each value.

*Ward Anger Rating scale (WARS)*

The distribution of data for the Ward Anger Rating scale (WARS) was also positively skewed as is shown in Figure VIII.3.

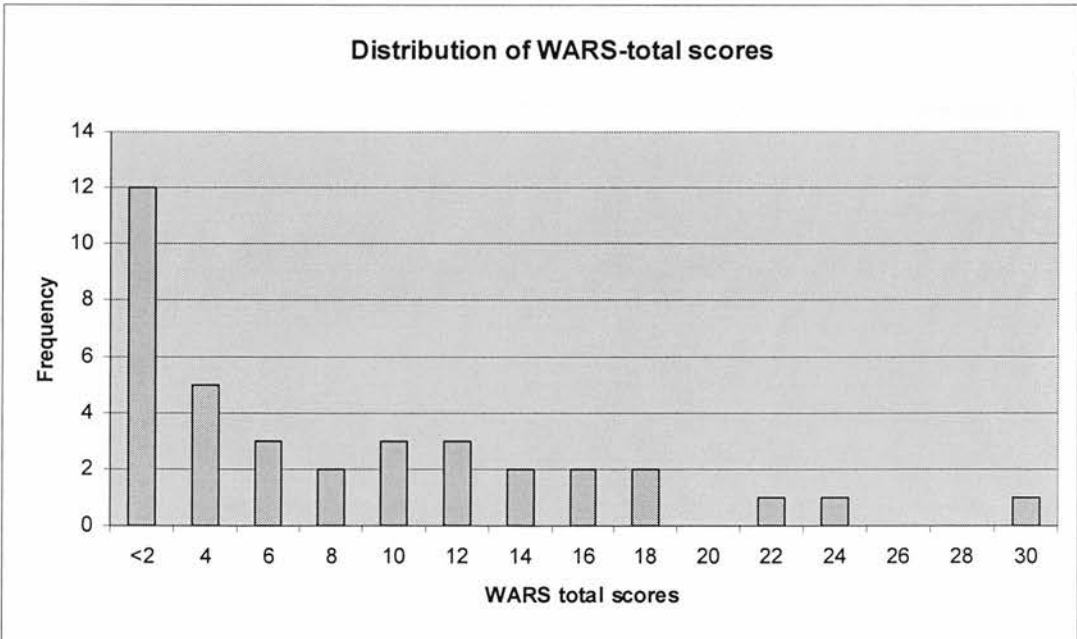


Figure VIII.3: Original frequency distribution of WARS scores indicating a positive skewed distribution.

As before, the data were transformed using the square root which again transformed the data sufficiently to allow for parametric tests (see Figure VIII.4).

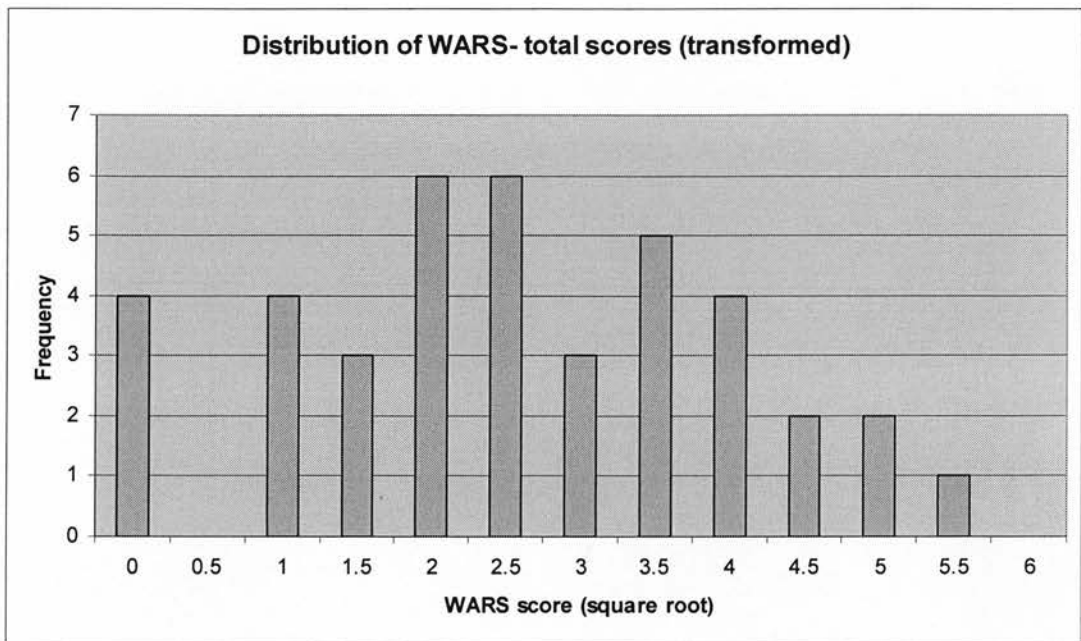


Figure VIII.4: Distribution of WARS scores following transformation of values using the square root.

## **Appendix IX**

Summary of correlational data

**Appendix IX: Summary of correlational analyses including partial correlations**

The correlation coefficients for each of the analyses are reported in Table AIX.1

	PAM Avoidance	PSYRATS Total	Partial Correlation	PAM Anxiety	PSYRATS Total	Partial Correlation
PAM-avoidance	n/a	0.13	n/a	n/a	n/a	n/a
PAM-anxiety	n/a	0.20	n/a	n/a	0.20	n/a
BSI (Physical violence)	0.29	0.17	0.28	0.06	0.17	0.04
BSI (Violence-aggression)	0.16	0.16	0.14	0.15	0.16	0.13
NAS Total	0.39*	0.08	0.38*	0.09	0.08	0.09
NAS Cognitive	0.31	0.11	0.30	0.11	0.11	0.09
NAS Arousal	0.45**	0.06	0.45**	0.22	0.06	0.21
NAS Behavioural	0.30	0.05	0.30	-0.04	0.05	-0.05
NAS Regulation	-0.33*	-0.15	-0.32	-0.17	-0.15	-0.15
NAS Provocation Inv.	0.35*	0.2	0.33*	0.23	0.20	0.21
WARS Total	0.06	0.08	0.05	0.15	0.08	0.15
WARS- Part A	-0.02	0.25	-0.05	0.29	0.25	0.26
WARS- Part B	0.08	0.04	0.08	0.12	0.04	0.12

Table AIX.1: Correlations coefficients (r) for associations between variables, including partial correlations controlling for the effects of symptom severity.

\*  $p < 0.05$   
\*\*  $P < 0.01$

As described in Chapter 8 (Section 8.1), data for the symptom severity variable (PSYRATS) was extremely non-normal in its distribution. Therefore partial correlations were not used in the main analyses however they were calculated and are reported here:

*Attachment and violence*

As indicated in Table AIX.1, partial correlations controlling for the influence of symptom severity did not significantly alter the relationship between attachment

avoidance and physical violence; between attachment anxiety and physical violence; attachment avoidance and violence-aggression or between attachment anxiety and violence-aggression, all of which remained non-significant.

#### *Attachment and self-reported anger*

Associations between attachment avoidance and self-reported anger remained significant when controlling for the influence of symptom severity using partial correlation ( $r = .38$ ,  $p = .019$ ). There remained no relationship between attachment anxiety and self-reported anger when controlling for symptom severity.

The association between attachment avoidance and anger arousal (ARO) remained significant when controlling for the effects of symptom severity using partial correlation ( $r = .45$ ,  $p = .005$ ). Similarly the association between attachment avoidance and anger provocation remained significant when controlling for the effects of symptom severity ( $r = .33$ ,  $p = .041$ ). However the association between attachment avoidance and self-reported anger regulation (REG) fell just outside the significance level when a partial correlation was used to control for the effects of symptom severity (see Table AIX.1).

Associations between attachment dimensions (both avoidance and anxiety) and the cognitive (COG) and behavioural (BEH) sub-scales of the NAS remained non-significant when controlling for the effects of symptom severity.



### *Attachment and observer-rated anger*

Using partial correlation to control for symptom severity, the association between attachment avoidance and observer-rated anger remained non-significant, as did the association between attachment anxiety and observer-rated anger. Similarly, associations between attachment dimensions and WARS-A and WARS-B remained non-significant when controlling for the influence of symptom severity.

## **Appendix X**

Summary of descriptive data

**Appendix X: Descriptive data**

	Mean	Std dev.	Range	Min-Max score	n
PAM-avoidance	1.28	0.41	0.5-2.38	0-3	39
PAM-anxiety	0.66	0.53	0-2	0-3	39
BSI (Physical violence)	19.55	1.11	14-20	4-20	38
BSI (Violence-aggression)	34.37	2.32	29-40	8-40	38
NAS Cognitive	26.59	4.75	20-38	16-48	39
NAS Arousal	23.31	4.35	17-33	16-48	39
NAS Behavioural	23.31	5.12	16-39	16-48	39
NAS Total	73.21	12.95	54-101	48-144	39
NAS Regulation	27.41	4.64	18-35	12-36	39
NAS Provocation Inv.	55.1	14.94	32-90	25-100	39
WARS A	1.16	2.05	0-8	0-18	38
WARS B	6.55	5.98	0-21	0-28	38
WARS Total	7.71	7.42	0-29	0-46	38
PSYRATS (AH)	4.87	4.21	0-33	0-44	39
PSYRATS (D)	10.72	6.07	0-19	0-24	39
PSYRATS Total	9.08	14.09	0-49	0-68	39

Table X.1: Mean scores, standard deviations, score ranges and sample sizes for each variable.

## **Appendix XI**

Additional WARS analyses

**Appendix XI: WARS A and WARS B analyses**

In addition to the main analysis involving the WARS total score, the associations between attachment avoidance and the two subscales of the WARS were analysed separately.

The WARS-A measures aggressive, antagonistic behaviours. A Pearson’s product moment correlation revealed no association between attachment avoidance and WARS-A score ( $r = -.02, p = 0.913$ ).

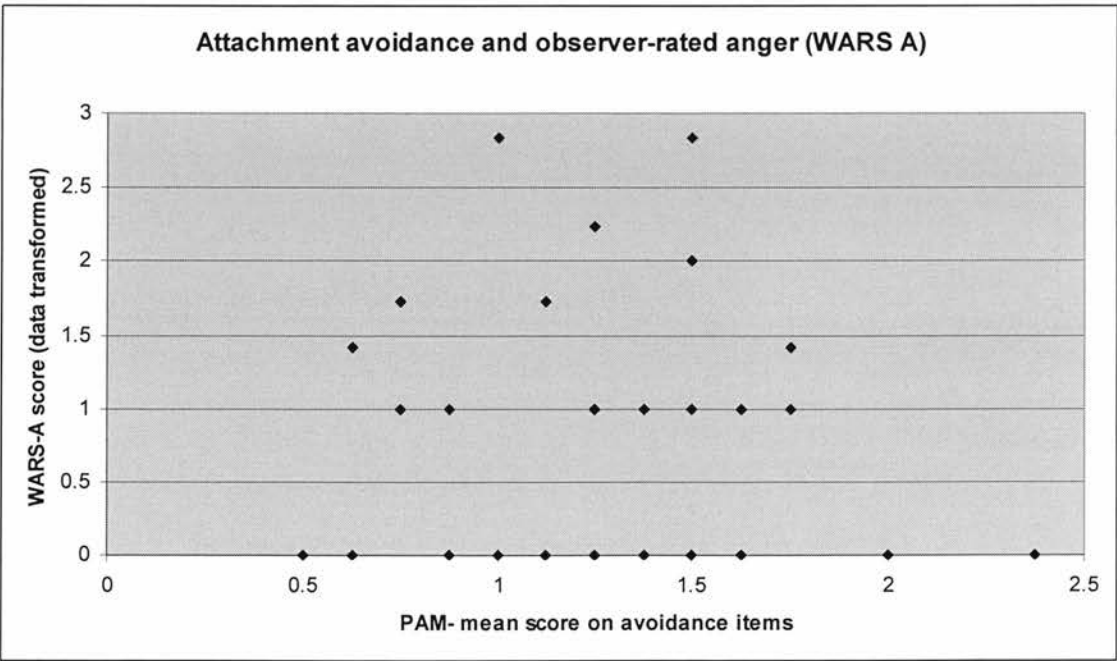


Figure AXI.1: Scatter plot of the association between attachment avoidance and WARS-A

As Figure A XI.1 shows, over half the individuals in the sample received a score of 0 on the WARS-A.

The second part of the WARS, part B provides an Anger Index. Using Pearson's product moment correlation, there was no significant association between attachment avoidance and WARS-B ( $r = .08$ ,  $p = .627$ ).

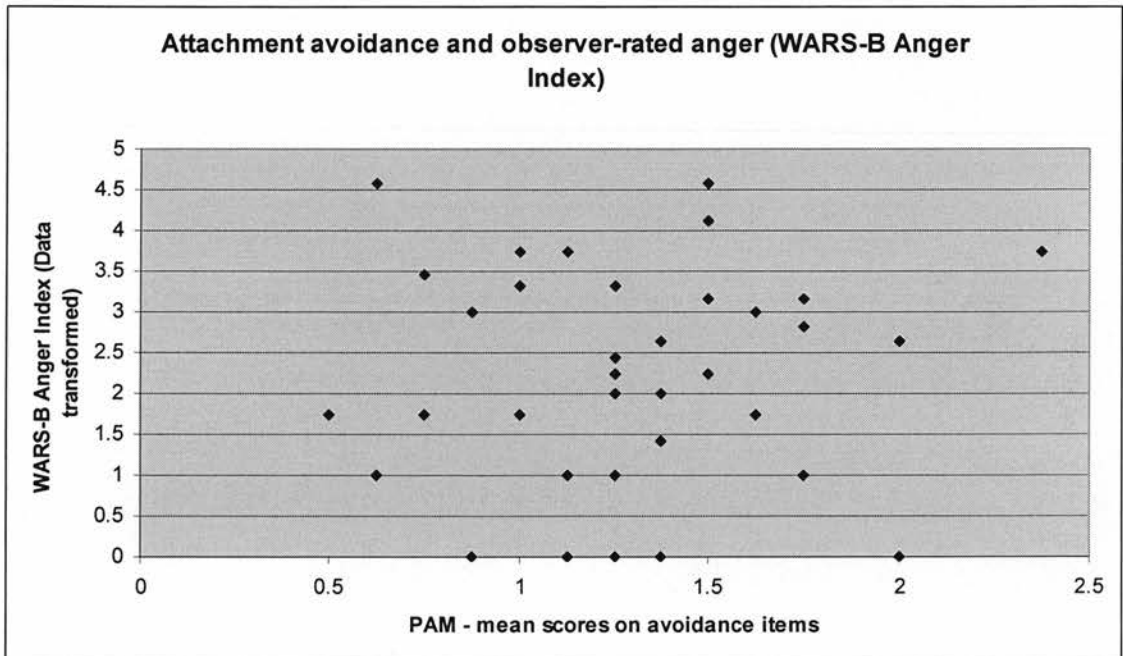


Figure A XI.2: Scatter plot of the association between attachment avoidance and WARS B-Anger Index.

## **Appendix XII**

### **Additional NAS subscale analyses**

**Appendix XII: Additional analyses with the NAS subscales**

As reported in the results section, there was a general trend of association observed between attachment avoidance and each of the three sub-scales of the Novaco Anger Scale (NAS) which contribute to the overall anger score. However, only one reached statistical significance (Anger arousal). This is reported in the results section. The other findings are reported here:

*Attachment avoidance and anger cognitions (NAS-COG)*

Pearson’s product moment correlation found the association between attachment avoidance and anger cognitions fell just outside the statistical significance level ( $r = .31$ ,  $p = .055$ ). A scatter plot of the relationship is shown in Figure AXII.1.

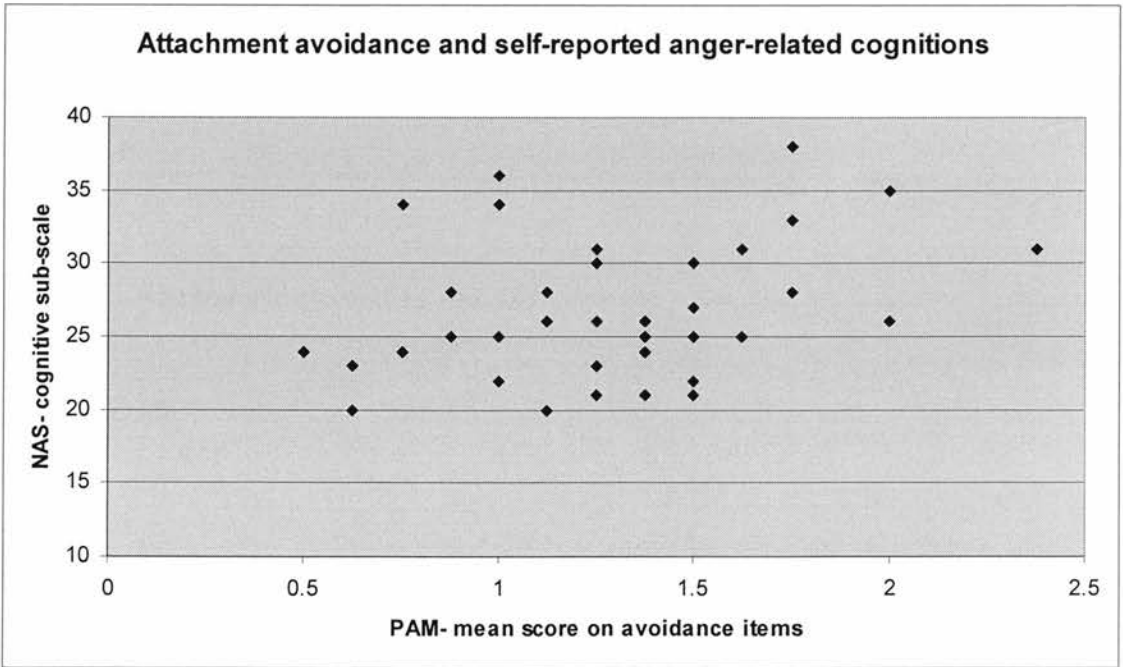


Figure AXII.1: Scatter plot of association between attachment avoidance and anger related cognitions (NAS-COG)



*Attachment avoidance and anger behaviour (NAS-BEH)*

The association between attachment avoidance and anger behaviour was not significant ( $r = .30$ ,  $p = .061$ ) (see Figure AXII.2).

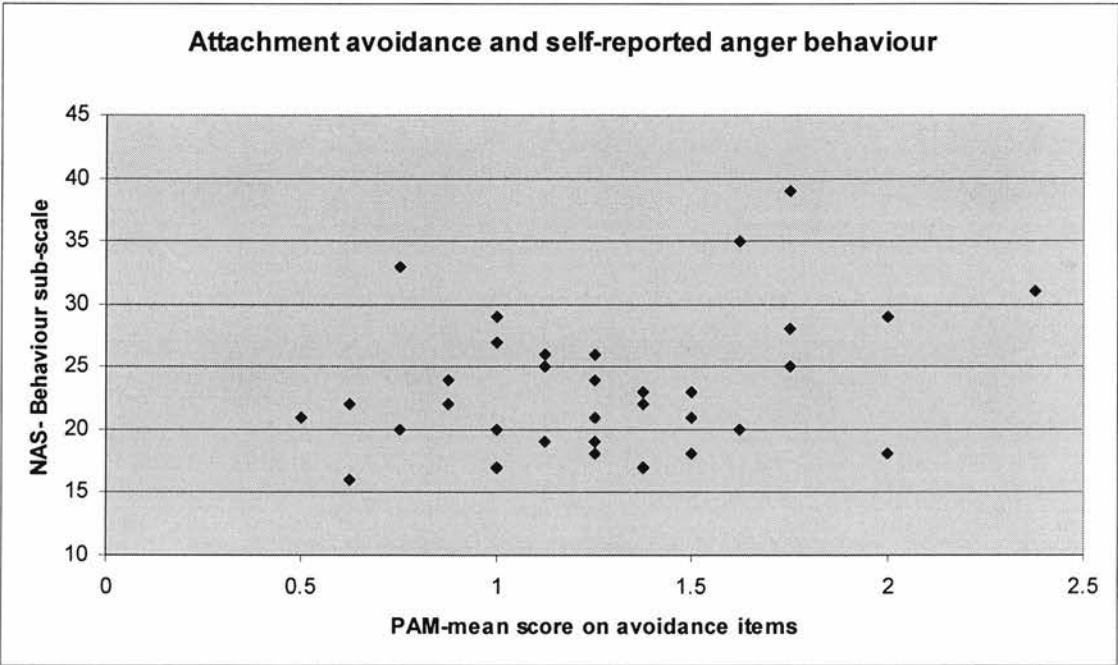


Figure AXII.2: Scatter plot of the association between attachment avoidance and anger behaviour (NAS-BEH).